

HAND DELIVERED

DEC - 6 2005  
05.03005  
UTAH DIVISION OF  
SOLID & HAZARDOUS WASTE

**Class I Landfill  
Permit Renewal Application**



Bountiful Sanitary Landfill  
Bountiful, Utah

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Revised Topographic Map 7-1/2 Minute Series

Revised Topographic Map 1" = 200'

Property Information for Relocation of Facilities

Deeds

Settlement Agreement of Bountiful City and U.D.O.T.



**Revised Plan Drawings from Appendix B**

**Site Improvements**

**Phase III Final Contours**

**Phase III Grading Plan**

**Phase IV Final Contours**

**Phase IV Grading Plan**

**Final Grading Plan**

## GENERAL DATA

PERMIT APPLICATION FORM

AND

PERMIT APPLICATION CHECKLIST



## Utah Division of Solid and Hazardous Waste Solid Waste Management Program

288 North 1460 West  
P.O. Box 144880  
Salt Lake City, Utah 84114-4880

Phone (801) 538-6170  
Fax (801) 538-6715  
[www.deq.utah.gov](http://www.deq.utah.gov)

### APPLICATION FOR A PERMIT TO OPERATE A CLASS I OR CLASS V LANDFILL

Please read the instructions that are found in the document, INSTRUCTIONS FOR APPLICATION FOR A PERMIT TO OPERATE A CLASS I OR CLASS V LANDFILL. This application form shall be used for all Class I or V solid waste disposal facility permits and modifications. Part I GENERAL INFORMATION must accompany a permit application. Part II, application checklist, is provided to assist applicants and, if included with the application, will assist review. **Please note** the version date of this form found on the lower right of the page; if you have received this form more than six months after this date it is recommended you contact our office at (801) 538-6170 to determine if this form is still current. When completed, please return this form and support documents, forms, drawings, and maps to:

Dennis R. Downs, Director  
Division of Solid and Hazardous Waste  
Utah Department of Environmental Quality  
PO Box 144880  
Salt Lake City, Utah 84114-4880

(Note: When the application is determined to be complete, submittal of two copies of the complete application will be required.)

# Utah Class I and V Landfill Permit Application Form

<b>Part I General Information</b> <b>APPLICANT PLEASE COMPLETE ALL SECTIONS</b>									
<input checked="" type="checkbox"/> <b>Class I</b> <input type="checkbox"/> <b>Class V</b>		<b>II. Application Type</b>			<input type="checkbox"/> <b>New Application</b> <input checked="" type="checkbox"/> <b>Renewal Application</b>		<input type="checkbox"/> <b>Facility Expansion</b> <input type="checkbox"/> <b>Modification</b>		
For Renewal Applications, Facility Expansion Applications and Modifications Enter Current Permit Number <b>9426</b>									
<b>III. Facility Name and Location</b>									
Legal Name of Facility <b>Bountiful Sanitary Landfill</b>									
Site Address (street or directions to site) <b>1300 West 1600 North (Pages Lane)</b>							County <b>Davis</b>		
City	<b>West of West Bountiful City</b>			State	<b>UT</b>	Zip Code	<b>84087</b>	Telephone	<b>801-298-6169</b>
Township	<b>2N</b>	Range	<b>1W</b>	Section(s)	<b>14</b>	Quarter/Quarter Section		Quarter Section	
Main Gate Latitude	degrees <b>40</b>		minutes <b>54</b>	seconds <b>30</b>	Longitude	degrees <b>111</b>		minutes <b>55</b>	seconds <b>00</b>
<b>IV. Facility Owner(s) Information</b>									
Legal Name of Facility Owner <b>Bountiful City Corporation</b>									
Address (mailing) <b>P.O. Box 369</b>									
City	<b>Bountiful</b>			State	<b>UT</b>	Zip Code	<b>84011-0369</b>	Telephone	<b>801-298-6125</b>
<b>V. Facility Operator(s) Information</b>									
Legal Name of Facility Operator <b>SAME AS FACILITY OWNER</b>									
Address (mailing)									
City				State		Zip Code		Telephone	
<b>VI. Property Owner(s) Information</b>									
Legal Name of Property Owner <b>SAME AS FACILITY OWNER</b>									
Address (mailing)									
City				State		Zip Code		Telephone	
<b>VII. Contact Information</b>									
Owner Contact <b>Mark W. Franc, P.E.</b>					Title <b>Environmental Engineer</b>				
Address (mailing) <b>P.O. Box 369</b>									
City	<b>Bountiful</b>			State	<b>UT</b>	Zip Code	<b>84011-0369</b>	Telephone	<b>801-298-6125</b>
Email Address <b>mfranc@bountifulutah.gov</b>					Alternative Telephone (cell or other) <b>801-726-7052</b>				
Operator Contact <b>SAME AS OWNER CONTACT</b>					Title				
Address (mailing)									
City				State		Zip Code		Telephone	
Email Address					Alternative Telephone (cell or other)				
Property Owner Contact <b>SAME AS OWNER CONTACT</b>					Title				
Address (mailing)									
City				State		Zip Code		Telephone	
Address					Alternative Telephone (cell or other)				

# Utah Class I and V Landfill Permit Application Form

General Information (Continued)				Facility Area	
Waste Types (Check all that apply)					
Waste Type	Combined Disposal Unit	Monofill Unit	Facility Area.....	150	acres
<input checked="" type="checkbox"/> Municipal Waste	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Disposal Area.....	100	acres
<input checked="" type="checkbox"/> Construction & Demolition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Design Capacity		
<input type="checkbox"/> Industrial	<input type="checkbox"/>	<input type="checkbox"/>	Years.....		
<input type="checkbox"/> Incinerator Ash	<input type="checkbox"/>	<input type="checkbox"/>	Cubic Yards.....		
<input type="checkbox"/> Animals	<input type="checkbox"/>	<input type="checkbox"/>	Tons.....		
<input type="checkbox"/> Asbestos	<input type="checkbox"/>	<input type="checkbox"/>			
<input type="checkbox"/> PCB's (R315-315-7(3) only)	<input type="checkbox"/>	<input type="checkbox"/>			
<input type="checkbox"/> Other	<input type="checkbox"/>	<input type="checkbox"/>			

X Fee and Application Documents						
Indicate Documents Attached To This Application				Application Fee: Amount \$		Class V Special Requirements
<input checked="" type="checkbox"/> Facility Map or Maps	<input checked="" type="checkbox"/> Facility Legal Description	<input checked="" type="checkbox"/> Plan of Operation	<input checked="" type="checkbox"/> Waste Description	<input type="checkbox"/> Documents required by UCA 19-6-108(9) and (10)		
<input checked="" type="checkbox"/> Ground Water Report	<input checked="" type="checkbox"/> Closure Design	<input checked="" type="checkbox"/> Cost Estimates	<input checked="" type="checkbox"/> Financial Assurance			

I HEREBY CERTIFY THAT THIS INFORMATION AND ALL ATTACHED PAGES ARE CORRECT AND COMPLETE		
Signature of Authorized Owner Representative	Title	Date
<i>Russell L. Mohan</i>	<i>Attorney</i> City Manager	March 1, 2005
	Address P.O. Box 369 Bountiful, Utah 84011-0369	
Signature of Authorized Land Owner Representative (if applicable)	Title	Date
	Address	
Name typed or printed	Title	Date
Signature of Authorized Operator Representative (if applicable)	Address	
	Address	
Name typed or printed		

## Utah Class I and V Landfill Permit Application Checklist

**Important Note:** The following checklist is for the permit application and addresses only the requirements of the Division of Solid and Hazardous Waste. Other federal, state, or local agencies may have requirements that the facility must meet. The applicant is responsible to be informed of, and meet, any applicable requirements. Examples of these requirements may include obtaining a conditional use permit, a business license, or a storm water permit. The applicant is reminded that obtaining a permit under the *Solid Waste Permitting and Management Rules* does not exempt the facility from these other requirements.

An application for a permit to construct and operate a landfill is the documentation that the landfill will be located, designed, constructed, and operated to meet the requirements of Rules R315-302, R315-303, R315-308, R315-309, and R315-315 of the *Utah Solid Waste Permitting and Management Rules* and the *Utah Solid and Hazardous Waste Act* (UCA 19-6-101 through 123). The application should be written to be understandable by regulatory agencies, landfill operators, and the general public. The application should also be written so that the landfill operator, after reading it, will be able to operate the landfill according to the requirements with a minimum of additional training.

Copies of the *Solid Waste Permitting and Management Rules*, the *Utah Solid and Hazardous Waste Act*, along with many other useful guidance documents can be obtained by contacting the Division of Solid and Hazardous Waste at 801-538-6170. Most of these documents are available on the Division's web page at [www.hazardouswaste.utah.gov](http://www.hazardouswaste.utah.gov). Guidance documents can be found at the solid waste section portion of the web page.

When the application is determined to be complete, the original complete application and one copy of the complete application are required along with an electronic copy.

### Part II Application Checklist

<b>I. Facility General Information</b>	
Description of Item	Location in Document
Completed Part I General information	PG.3
General description of the facility (R315-310-3(1)(b))	PG.11
Legal description of property (R315-310-3(1)(c))	APPENDIX A
Proof of ownership, lease agreement, or other mechanism (R315-310-3(1)(c))	APPENDIX A
Area served by the facility including population (R315-310-3(1)(d))	PG.11
If the permit application is for a class I landfill a demonstration that the landfill is not a commercial facility	PG.11
Waste type and anticipated daily volume (R315-310-3(1)(d))	PG.11
Intended schedule of construction (R315-302-2(2)(a))	PG.13
<b>Demonstration That The Facility Meets The Location Standards (R315-302-1)</b>	
Land use compatibility	PG.73
Maps showing the existing land use, topography, residences, parks, monuments, recreation areas or wilderness areas within 1000 feet of the site boundary	PG. 41-42
Certifications that no ecologically or scientifically significant areas or endangered species are present in site area	PG.73
List of airports within five miles of facility and distance to each	PG.73

<b>I. Facility General Information</b>	
<b>Description of Item</b>	<b>Location In Document</b>
Geology	PG. 57
Geologic maps showing significant geologic features, faults, and unstable areas	APPENDIX F
Maps showing site soils	APPENDIX F
Surface water	APPENDIX F
Magnitude of 24 hour 25 year and 100 year storm events	APPENDIX F
Average annual rainfall	APPENDIX F
Maximum elevation of flood waters proximate to the facility	APPENDIX F
Maximum elevation of flood water from 100 year flood for waters proximate to the facility	APPENDIX F
Wetlands	PG 41-42
Ground water	APPENDIX F
<b>Plan of Operations (R315-310-3(1)(e) and R315-302-2(2))</b>	
Forms and other information as required in R315-302-2(3) including a description of on-site waste handling procedures and an example of the form that will be used to record the weights or volumes of waste received (R315-302-2(2)(b) And R315-310-3(1)(f))	PG 16-17 APPENDIX C
Schedule for conducting inspections and monitoring, and examples of the forms that will be used to record the results of the inspections and monitoring (R315-302-2(2)(c), R315-302-2(5)(a), and R315-310-3(1)(g))	PG 16 APPENDIX C
Contingency plans in the event of a fire or explosion (R315-302-2(2)(d))	PG 23
Corrective action programs to be initiated if ground water is contaminated (R315-302-2(2)(e))	PG 19
Contingency plans for other releases, e.g. explosive gases or failure of run-off collection system (R315-302-2(2)(f))	PG 23
Plan to control fugitive dust generated from roads, construction, general operations, and covering the waste (R315-302-2(2)(g))	PG 54
Plan for letter control and collection (R315-302-2(2)(h))	PG 48
Description of maintenance of installed equipment (R315-302-2(2)(i))	PG 26,39,53
Procedures for excluding the receipt of prohibited hazardous or PCB containing wastes (R315-302-2(2)(j))	PG 26
Procedures for controlling disease vectors (R315-302-2(2)(k))	PG 26,54
A plan for alternative waste handling (R315-302-2(2)(l))	PG 25
A general training and safety plan for site operations (R315-302-2(2)(o))	PG 28
Any recycling programs planned at the facility (R315-303-4(6))	PG 29
Closure and post-closure care Plan (R315-302-2(2)(m))	PG 35-40
Procedures for the handling of special wastes (R315-315)	PG 26



<b>I. Facility General Information</b>	
Description of Item	Location in Document
Plans and operation procedures to minimize liquids (R315-303-3(1)(a) and (b))	PG 26
Plans and procedures to address the requirements of R315-303-3(7)(c) through (i) and R315-303-4	THROUGHOUT APPLICATION
Any other site specific information pertaining to the plan of operation required by the Executive Secretary (R315-302-2(2)(p))	N/A
<b>SPECIAL REQUIREMENTS FOR A CLASS V LANDFILL (R315-310-3(2))</b>	
Submit information required by the <i>Utah Solid and Hazardous Waste Act</i> Subsections 19-6-108(9) and 19-6-108(10) (R315-310-3(2)(a))	N/A
Approval from the local government within which the solid waste facility sits	N/A

<b>II. Facility Technical Information</b>	
Description of Item	Location in Document
<b>Maps</b>	
Topographic map drawn to the required scale with contours showing the boundaries of the landfill unit, ground water monitoring well locations, gas monitoring points, and the borrow and fill areas (R315-310-4(2)(a)(i))	PG 43
Most recent U.S. Geological Survey topographic map, 7-1/2 minute series, showing the waste facility boundary; the property boundary; surface drainage channels; any existing utilities and structures within one-fourth mile of the site; and the direction of the prevailing winds (R315-310-4(2)(a)(ii))	PG 42
<b>Geohydrological Assessment (R315-310-4(2)(b))</b>	
Local and regional geology and hydrology including faults, unstable slopes and subsidence areas on site (R315-310-4(2)(b)(i))	PG 57
Evaluation of bedrock and soil types and properties including permeability rates (R315-310-4(2)(b)(ii))	PG 57
Depth to ground water (R315-310-4(2)(b)(iii))	PG 60-68
Direction and flow rate of ground water (R315-310-4(2)(b)(iv))	PG 60-68
Quantity, location, and construction of any private or public wells on-site or within 2,000 feet of the facility boundary (R315-310-4(2)(b)(v))	PG 65
Tabulation of all water rights for ground water and surface water on-site and within 2,000 feet of the facility boundary (R315-310-4(2)(b)(vi))	PG 65
Identification and description of all surface waters on-site and within one mile of the facility boundary (R315-310-4(2)(b)(vii))	PG 65
Background ground water and surface water quality assessment and, for an existing facility, identification of impacts upon the ground water and surface water from leachate discharges (R315-310-4(2)(b)(viii))	PG 67
Ground Water Monitoring (R315-303-3(7)(b) and R315-308)	PG 67
Statistical method to be used (R315-308-2(7))	PG 20

<b>// Facility Technical Information</b>	
<b>Description of Item</b>	<b>Location in Document</b>
Calculation of site water balance (R315-310-4(2)(b)(ix))	APPENDIX F
<b>ENGINEERING REPORT - PLANS, SPECIFICATIONS, AND CALCULATIONS</b>	
Documentation that the facility will meet all of the performance standards of R315-303-2	PG 75
Engineering reports required to meet the location standards of R315-302-1 including documentation of any demonstration or exemption made for any location standard (R315-310-4(2)(c)(i))	PG 73
Anticipated facility life and the basis for calculating the facility's life (R315-310-4(2)(c)(ii))	PG 14-16
Cell design to include liner design, cover design, fill methods, elevation of final cover including plans and drawings signed and sealed by a professional engineer registered in the State of Utah (R315-303-3(3), R315-303-3(6) and (7)(a), R315-310-3(1)(b) and R315-310-4(2)(c)(iii))	PG 75
Leachate collection system design and calculations showing system meets the requirements of R315-303-3(2)	PG 77
Equipment requirements and availability (R315-310-4(2)(c)(iii))	PG 16-17
Identification of borrow sources for daily and final cover and for soil liners (R315-310-4(2)(c)(iv))	PG 76-77
Run-On and run-off diversion designs (R315-303-3(1)(c), (d) and (e))	PG 77
Leachate collection, treatment, and disposal and documentation to show that any treatment system is being or has been reviewed by the Division of Water Quality (R315-310-4(2)(c)(v) and R315-310-3(1)(i))	N/A
Ground water monitoring plan that meets the requirements of Rule R315-308 including well locations, design, and construction (R315-310-4(2)(b)(x) and R315-310-4(2)(c)(vi))	PG 18
Landfill gas monitoring and control plan that meets the requirements of Subsection R315-303-3(5) (R315-310-4(2)(c)(vii))	PG 18-19
Slope stability analysis for static and under the anticipated seismic event for the facility (R315-310-4(2)(b)(i) and R315-302-1(2)(b)(ii))	PG 73 APPENDIX G
Design and location of run-on and run-off control systems (R315-310-4(2)(c)(viii))	PG 77
<b>CLOSURE PLAN (R315-310-3(1)(h))</b>	
Closure Plan (R315-302-3(2) and (3))	PG 35
Post-Closure Plan (R315-302-3(5) and (6))	PG 39
Closure schedule (R315-310-4(2)(d)(i))	PG 39
Design of final cover (R315-303-3(4) and R315-310-4(2)(c)(iii))	PG 35
Capacity of site in volume and tonnage (R315-310-4(2)(d)(ii))	PG 36
Final inspection by regulatory agencies (R315-310-4(2)(d)(iii))	PG 38
<b>POST-CLOSURE CARE PLAN (R315-310-3(1)(h))</b>	
Site monitoring of landfill gases, ground water, and surface water, if required (R315-310-4(2)(e)(i))	PG 39

<b>// Facility Technical Information</b>	
<b>Description of Item</b>	<b>Location in Document</b>
Changes to record of title, land use, and zoning restrictions (R315-310-4(2)(e)(ii))	PG 40
Maintenance activities to maintain cover and run-on/run-off control systems (R315-310-4(2)(e)(iii))	PG 39
List the name, address, and telephone number of the person or office to contact about the facility during the post-closure care period (R315-310-4(2)(e)(vi))	PG 3
<b>FINANCIAL ASSURANCE (R315-310-3(1)(j))</b>	
Identification of closure costs including cost calculations (R315-310-4(2)(d)(iv)) and (R315-302-2(2)(n))	PG 33
Identification of post-closure care costs including cost calculations (R315-310-4(2)(e)(iv))	PG 34
Identification of the financial assurance mechanism that meets the requirements of Rule R315-309 and the date that the mechanism will become effective (R315-309-1(1))	PG 31

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## GENERAL REPORT

**GENERAL FACILITY DESCRIPTION**  
**RELATIONSHIP TO COUNTY SOLID WASTE PLAN**  
**OWNERSHIP**

The Bountiful Sanitary Landfill (Previously called the Bay Area Refuse Disposal site (BARD)) occupies approximately 150 acres on the east shore of the Great Salt Lake, west of West Bountiful, Utah. The landfill began receiving municipal wastes in about 1962, while it was operated by a group of six east shore cities, and Davis County which constituted the Bay Area Refuse Disposal District. The Bay Area Refuse Disposal District consisted of the following public entities:

1. Bountiful City
2. Centerville City
3. Farmington City
4. City of North Salt Lake
5. West Bountiful City
6. Woods Cross City
7. Davis County (unincorporated areas)

Starting July 1987, all of the public entities except Bountiful joined the Davis County Solid Waste Management District and began transferring their refuse to the Davis County "Burn Plant" near Hill Air Force Base in North Davis county. Since that time the landfill has been operated solely by the City of Bountiful.

Use of the facility is limited to residents of the City of Bountiful. The landfill receives residential and commercial wastes and construction debris produced within Bountiful City (Population 41,301 as of 2000 Census). Hazardous wastes, asbestos, and PCB contaminated wastes and old tires are not allowed in the landfill.

The property upon which the landfill is located is owned by the City of Bountiful, and is located in the NW 1/4 Sec. 14 T. 2 N. R. 1 W. SLB&M. The front gate is located at latitude 40°54'30" and Longitude 111°55'00". Proof of ownership is attached in appendix A.

## PLAN OF OPERATION

### Schedule of Construction

Upgrading and implementation of operational changes at the Bountiful Sanitary Landfill began in 1987 when Bountiful City became sole owner and operator of the facility. These changes were the beginning of the process required in order to come into compliance with State of Utah Solid Waste Permitting and Management Rules. Barton/Stone Creek, which prior to 1992 was unlined and traversed the south portion of the landfill, was realigned and concrete lined in an attempt to isolate refuse from surface and ground water. A large pond was also excavated south and west of the landfill that serves several purposes. One of the important purposes was to obtain low permeability clay cover material to use in landfill operations. Much of the soil excavated was used to re-contour the south half and the east side of the north half of the landfill to promote runoff and reduce infiltration into the refuse. This cover soil reaches fourteen feet thick in some areas. Current plans are to excavate cells from this cover and continue filling refuse in these areas when the fill plan progresses to that point.

In spring of 1996, landfill personnel completed the excavation and lining of the runoff retention/evaporation pond to retain runoff of storm water from the active face of the landfill during a 24-hour 25 year intensity storm. Landfilling is being accomplished in a manner such that the working face and surrounding areas drain toward the pond in order to retain any runoff from the active face within the pond.

Additional upgrades at the site include implementation and enlarging of the recycling program at the landfill site to complement the current recycling program operated by the City of Bountiful. Bins have been placed near the entrance of the site where recyclable materials can be deposited. These bins are in addition to the bin which has been on site for several years for recycling carpet pads and are for white goods (appliances), aluminum and steel.

As a means of waste reduction the city has also implemented several operations to reduce the amount of yard waste deposited in the landfill. In 1996 the City began to produce and stockpile wood chips from tree limbs and branches delivered to the landfill for disposal. These chips are useful for various public and private projects, including disease vector control and daily cover at the landfill. This program has developed into a composting program using the excess wood chips along with other yard waste delivered to the landfill to produce a high quality mulch which is sold back to the public.

The 1996 site improvements also included a new scale, scale house, operations center/office building, and a new equipment storage building at the landfill site. These improvements have necessitated expanding the public utilities at the site. Culinary water, natural gas, and sanitary sewer service the facility.

A layout of the site improvements is included in Appendix B.

#### **Fill Plan**

This fill plan was developed in an attempt to provide the most efficient use of landfill space and available cover material by making haul distances as short as possible. The fill plan is divided into four major phases. These phases are briefly described as follows:

**Phase I.** This is the area that was currently being filled with refuse at the time of the initial permit application in October 1994. As indicated on the figure in Appendix B, it is located near the center and west end of the north half of the landfill. Current plans are to fill this area to a slope that matches the east and west sides with positive drainage away from the refuse. Quantity and volume calculations indicate that this phase has a life of approximately 2.5 years beginning fall of 1994. This phase was completed around the end of 1996.



**Phase II.** This is the area currently being filled. This phase will attempt to make maximum use of the entire north half of the landfill. As indicated on the drawings in Appendix B, fill will begin at approximately elevation 4220, and will progress in an orderly manner across the phase. Fill will progress in an area fill manner, in lifts approximately 10 feet thick. Grading will provide drainage away from the active face and toward the run-off retention pond. Each lift will be well compacted, and receive daily cover. The top of each lift will receive 12 inches of interim cover, and be sloped at a minimum of one percent to promote storm water runoff and minimize infiltration. The interim cover will be left in place for a maximum of two years. Some time during the first two years, either an additional lift of refuse will be placed over the area, or a temporary cover at least eighteen inches thick will be placed over the area in order to minimize infiltration. The eighteen inch thick layer will be monitored for erosion on a regular basis as part of the regular maintenance and monitoring activities at the landfill. When the first lift has covered the entire north half or reached daylight matching contours from phase I, filling activities will be moved back to the west edge. The same fill sequence will be followed for subsequent lifts. Upon completion of this phase, side slopes will be approximately twenty percent on all sides of the north half of the landfill. The north, east, and west slopes of the north half of the landfill will receive final cover, top soil, and re-vegetation as the area is filled. When Phase II is completed, the final cover, topsoil, and vegetation will be in place and prepared for eventual closure. Quantity and volume calculations indicate that this phase has a life of approximately 32 years.

**Phase III.** This phase will be very similar to phase II, but will be performed on the south half of the landfill. The main difference will be that the south half currently has excess cover material, (up to 14 feet thick) which will be excavated and stockpiled for use as final cover on the landfill. The first lift will resemble a trench fill procedure as the excess cover material is reclaimed. After the excess clay cover is excavated, and the first lift is placed, subsequent lifts will be placed in an area fill manner. Upon completion of this phase, side slopes will be at twenty percent. The south, east, and west slopes will have

final cover, topsoil, and be re-vegetated as the fill is being placed. Quantity and volume calculations indicate that this phase has a life of approximately 20 years.

**Phase IV.** This will be the final phase of refuse fill at the site. In this phase the center "valley" between phase II and phase III will be filled. In order to provide drainage toward the retention pond, fill will begin on the east end of the valley and will progress toward the west in an area fill manner with lifts of between five and ten feet thick. Access to the working face will be provided by traversing the north half of the landfill and approaching the working face from the west. Fill on the east end of the phase will slope at twenty percent to match the slopes on the east side of phases II and III. As fill is placed, final cover, top soil, and re-vegetation will be ongoing. Quantity and volume calculations indicate that this phase has a life of approximately 12 years.

Based on the expected life of each phase, it is our opinion that the Bountiful Sanitary Landfill has a maximum anticipated life of approximately 65 years. However, small changes in variables involved in calculating landfill life can make it nearly impossible to anticipate capacity over the next sixty five years. Therefore our current estimate of landfill life is 50+ years.

### **Solid Waste Handling Procedures**

As solid waste is transported on site, the transport vehicle must pass the scale house. Every commercial load of refuse delivered to the site will be weighed to determine the weight of refuse deposited. In addition, all construction and demolition waste will be weighed regardless of the hauler. Individual private citizens hauling municipal solid waste (pick-up trucks) will be charged a uniform fee and the tonnage will be estimate based on a calculated average weight. This information will be recorded on the appropriate computer generated form in Appendix C, and retained in landfill records. The scale house operator will be trained to recognize potential hazardous waste, and will question the transporter as to the origin of the wastes to be deposited. All suspicious loads will be inspected by trained personnel, and if determined to contain hazardous material will not be allowed to unload at the landfill. At least one percent of all loads delivered to the landfill will be inspected at random. This inspection will occur at either the

working face or at a designated load inspection bin at the landfill. If a load is determined to contain hazardous materials after unloading has occurred, either at the working face or at the location designated for inspection, the transporter will be required to reload the refuse and transport it from the landfill. If a load is determined to be nonhazardous after unloading at the location designated for inspection, the refuse will be moved to the working face by landfill operators. Any recyclable materials will be separated by the transporter, and deposited in the recycling bins prior to progressing to the working face of the landfill for disposal. Transporters hauling yard clippings and tree limbs will be directed to the composting area for unloading.

After the solid waste is unloaded at the working face of the landfill, landfill operators will move the refuse to the location necessary in order to obtain the desired lift thickness and slope. The refuse will then be compacted to a minimum density of at least 29.6 pounds per cubic foot (800 pounds per cubic yard) by making several passes over the refuse with the compaction equipment. As the refuse is compacted to the desired density, lift thickness and slope, an approved daily cover will be placed over the refuse in order to control vectors, fire, odor, blowing litter, and scavenging. The entire working face will be covered at the end of each working day.

The equipment used for refuse distribution, compaction, daily cover and cell excavation is listed below:

2 Compactors	'91 Caterpillar 826-C, '80 Caterpillar 826-C
2 Dozer	Caterpillar DH-6, Komatsu D-85
1 Loader	Caterpillar 966-D
2 Dump Trucks	Mack 10yd, Ford 10yd
1 Excavator	Kobelco Trac-hoe

Also available on site for landfill use is are two water trucks to be used for dust control and emergency fire control. They are both Ford F-800 trucks, one with a 2000 gallon tank and one with an 1800 gallon tank. A complete equipment list with the anticipated replacement schedule is attached in appendix D.

## **Monitoring Schedule**

**Ground Water. Background.** Bountiful City has been sampling the groundwater at our landfill on a quarterly schedule since September 1996 when the new background and compliance wells were completed. Initially, the reason for sampling quarterly was to quickly produce sufficient data to develop background concentrations for the groundwater constituents. Upon obtaining sufficient background data to perform the appropriate statistical analyses, we discovered a statistically significant increase in arsenic concentrations in well BSL-3. We reported these results to the Utah Division of Solid and Hazardous Waste in our annual Statistical Analysis Report for that year dated January 19, 1999.

As proposed in the report we initiated an assessment monitoring program which included taking one sample from well BSL-2 and one sample from well BSL-3 and having them analyzed for all constituents listed as Appendix II in 40 CFR Part 258, 1991 ed.. We determined that none of the Appendix II constituents were detected in any of the samples tested. Based on this we received authorization to test only for constituents listed in Section R315-308-4 but were required to continue testing on a quarterly basis.

**Current Program.** We followed the above testing schedule until June of 2001 when we were authorized by the Division of Solid and Hazardous Waste to again amend our monitoring schedule. We are currently sampling and analyzing for organic compounds on a semiannual basis in all wells. We are sampling and analyzing metals and inorganic constituents semiannually in up gradient well BSL-1. We are sampling down gradient wells BSL-2 and BSL-3 on a quarterly schedule for metals and inorganic constituents.

We feel that this monitoring schedule allows us to accurately track the quality of the groundwater at the site and will not compromise the environmental integrity of our landfill operations.

**Methane.** Perimeter methane monitoring will be conducted on a quarterly basis. A calm day will be chosen so that worst case conditions can be determined. Perimeter methane readings will

be taken at random locations along the boundaries of the landfill. Methane readings will also be taken in each of the ground water monitoring wells immediately upon removal of the cap from the well. The methane concentrations in the wells are expected to be high, and will be for our information only. Sampling points for compliance will be at random locations around the perimeter of the landfill.

Methane monitoring in the buildings at the landfill will be conducted monthly. Readings will be taken immediately upon arrival Monday morning after the buildings have been shut up with no activity over the weekend. This will likely produce a worst case situation, which will allow detection of methane problems in the buildings.

Self inspections of the monitoring systems, equipment, and operations will be conducted at least quarterly at the landfill to prevent malfunctions and deterioration, operator errors, or discharges which may cause or lead to the release of waste to the environment, or to a threat to human health.

### **Forms**

Forms for keeping an operating record which includes the weights, and types of waste received each day, number of vehicles entering each day, any deviations from approved plan of operation, results of groundwater and gas monitoring, and self inspection are attached in Appendix C. Training certificates are attached in Appendix D.

### **Corrective Action**

The Engineering Staff at Bountiful City are monitoring the quality of the groundwater at the Landfill site on a regular basis. Attempts are being made to accurately refine our knowledge relating to the extent of ground water contamination at the site and the extent to which it is adversely affecting off site surface and ground water. This task is quite complicated and involved because of the complexity of the hydrogeology, the amount of data available, and the fact that some of the data is suspect based on well location, screen depth, and spacial variation in ground water quality.

Three new monitoring wells were placed at the site in spring of 1996. The new well locations were chosen in order to provide better compliance with section R315-308-2 (1-2) and to address concerns with well location and screen depth and to attempt a determination of spacial variation in ground water quality at the site.

One upgradient well was placed at a location on landfill property, in an area unaffected by landfill operations. This is used to determine upgradient quality of the ground water. Two down gradient wells were placed at a location far enough from the landfill area to be sure that it does not penetrate areas filled with refuse. These are the compliance wells.

Bountiful City maintains a software license agreement with NIC Solutions for *Sanitas* for Groundwater. *Sanitas* is a statistical analysis program specifically designed for analysis of groundwater data for regulatory compliance and MSW landfills. It provides various options for ground water analysis based on site specific conditions, and statistical distribution of data. Our license agreement with NIC solutions ensures that we are using the latest version of the software and receive any necessary software support. Bountiful city proposes to continue our use of *Sanitas* for Groundwater as our means of statistical analysis compliance.

As new results of our groundwater monitoring program and the statistical analysis if the data become available, we will adjust and amend our decisions regarding the quality of the groundwater within and surrounding the landfill. Any new site the information will be submitted to the Executive Secretary along with our plans for implementing or expanding Assessment Monitoring activities if necessary.

The following steps will be followed in determining if the implementation of a corrective action program at the site is necessary:

1. Background concentrations of the "detection monitoring parameters" in the groundwater at the site will be determined using the procedures described in Subsection R315-308-2(4)(a) of the Solid Waste Permitting and Management

Rules, which includes a minimum of eight independent samples from the new up-gradient well and four from the new down gradient wells for all constituents which are to be statistically analyzed.

2. The data obtained from detection monitoring activities will be statistically analyzed in order to determine if a statistically significant change from background has occurred.
3. If a statistically significant change in groundwater quality caused by landfilling operations is determined to have occurred in the parameters or constituents at the compliance point, the landfill operators will follow the procedures outlined in subsection R315-308-2(10) and (11) which will include sampling and testing for constituents listed as Appendix II in 40 CFR Part 258, 1991 ed. .
4. Background concentrations of detected Appendix II constituents will be determined using procedures described in Subsection R315-308-2(11)(c).
5. A ground water protection standard will be set by the Executive Secretary for the detected Appendix II constituents.
6. Landfill operators will then sample quarterly for all "detection monitoring" constituents and all detected Appendix II constituents.
7. If one or more of the constituents described in No. 6 above are detected in statistically significant quantities above the groundwater protection standard established in No. 5 above, landfill operators will perform the required tasks listed in subsections R315-308-2(12)(a-e), which includes the following:
  - a. place a notice in the operating record,

- b. notify the Executive Secretary, and all appropriate local governmental and health officials,
  - c. characterize the nature and extent of the release by installing additional monitoring wells as necessary, with at least one at the facility boundary in the direction of contaminant migration, and make necessary notifications to adjacent property owners and residents.
- 8. If demonstration cannot be made that a source other than the solid waste disposal facility caused the contamination, or that the statistically significant change resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water quality, a corrective action program will be implemented.

**Corrective action program.** If it is determined, after the above listed procedures have been followed, that corrective action is necessary, Bountiful Sanitary Landfill operators will:

- 1. continue groundwater monitoring on a quarterly or semi-annual basis as required,
- 2. take any interim measures as required by the Executive Secretary or as necessary for the protection of human health and the environment,
- 3. assess possible corrective action measures addressing following:
  - a. the performance, reliability, ease of implementation, and potential impacts of potential remedies, including safety impacts, cross-media impacts, and control exposure to any residual contamination;
  - b. time required to begin and complete the remedy;



- c. the cost of remediation;
  - d. public health or environmental requirements that may substantially affect implementation of the remedy;
  - e. hold a public hearing concerning the proposed remediation program;
  - e. review the results of the corrective measures assessment conducted and the comments received in the public hearing.
4. Based on the results of the corrective measures assessment conducted, and the comments received in the public hearing, Bountiful Sanitary Landfill operators will select a remedy which will be submitted to the Executive Secretary for approval.

Upon approval of the corrective action, landfill operators will implement the corrective action program according to the time schedule in the program.

### **Contingency Plans**

The design of the Bountiful Sanitary Landfill has been performed using sound engineering practice with factors of safety, and other design standards in an effort to minimize the potential hazards due to fire, explosion, release of explosive gases, or failure of the run-off containment system. Emergency evacuation of the site will probably not be necessary given the nature of the waste materials stored and processed. The probability of fire, explosion, or toxic vapor generation is remote.

**Fire or explosion.** The hazard caused by a fire or explosion is intensified in the presence of discarded household chemicals, paints, fuels, etc., or other hazardous materials. Monitoring and inspection of waste loads is intended to exclude these substances from the waste stream, and therefore reduce the hazard caused by accidental fires. Because burning of any kind is not

allowed at the landfill, any fire intentionally ignited is considered vandalism, and will be pursued and prosecuted as such by landfill operators. Foreseeable means by which accidental fires or explosions may occur at the site include spontaneous combustion in refuse containers, or more likely, by hot ashes or sparks delivered to the landfill within the refuse stream. Landfill operators will be trained in recognizing loads which contain hot ashes and will be instructed to prevent their disposal among other flammable refuse.

If a fire or explosion occurs at the site, the on-site Landfill Manager will be responsible to determine if there is any immediate danger to personnel. If it is determined that any immediate danger exists, the site will be evacuated immediately. The signal for evacuation will be three long blasts from an automobile horn. If this signal is heard at any time, all personnel will immediately leave the site and meet for a head count outside the entrance gate. When danger to on-site personnel exists, the South Davis Metropolitan Fire District will be summoned to fight the fire.

If it is determined that no immediate danger exists, the Landfill Manager will determine and implement a procedure to fight the fire. These procedures may include isolating the burning area from the working face and covering with on-site soil, use of the on-site water truck, and fire extinguishers for small fires, and/or obtain support from the South Davis Metropolitan Fire District. All fires not immediately controlled by Landfill personnel will be reported to the Utah Division of Solid and Hazardous Waste.

**Explosive Gas Release.** Monitoring for explosive gasses will occur on a quarterly basis at the landfill boundaries, and monthly in the buildings at the landfill. If it is determined that there are unsafe levels of explosive gasses during any of the monitoring activities, emergency evacuation of the landfill site will occur and immediate actions will be taken to reduce the levels of explosive gas. In the buildings, gas levels will be reduced by increasing the ventilation in the buildings. This will be accomplished by opening doors and windows, and if necessary by placing fans so that fresh air is forced into the building. The South Davis Metropolitan Fire

District will be alerted to the high explosive gas levels, and their support in ventilating the building will be summoned if necessary.

If high explosive gas levels are discovered at the landfill boundaries, operators will immediately notify occupants of nearby structures, and where possible, test the air in nearby structures for explosive gas to determine if any immediate danger exists. If so, ventilation procedures of the buildings will be performed using procedures similar to those above.

### **Alternative Waste Handling or Disposal**

The two foreseeable reasons that may require implementation of alternative waste handling at the landfill site are equipment breakdown and inclement weather. Landfill operators plan to keep equipment in top working condition by following manufacturer's recommendations for regular maintenance, and inspection of parts for the purpose of replacing parts receiving wear and tear through use.

If a piece of equipment breaks down it can be efficiently repaired in the on-site shop, and while being repaired, the landfill will keep sufficient equipment on site to cover for a broken down piece. For example, the dozer can temporarily be used as a compactor if necessary, and the compactor can be used to move and place refuse.

In the case of inclement weather or other emergency which would interrupt normal disposal of refuse, it is the opinion of the landfill operators, that due to the large size of the landfill, and available fill area, if an area cannot be used for disposal, landfilling activities can be moved to another more accessible or useable area within the landfill.

If emergency conditions exist that do not allow use of any part of the landfill on a temporary basis, large bulk containers will be placed near the landfill, and a transfer station type operation will be temporarily employed. When conditions return to normal, the refuse will be placed in the landfill and compacted and covered as normal.

### **Maintenance of Monitoring Equipment**

Maintenance of installed monitoring equipment will occur on an as needed basis. Ground water monitoring wells will be visually inspected during all sampling events and all regularly scheduled inspections. Any noted damage or wear to the monitoring systems will be assessed and repaired.

The suitability of the monitoring systems to accomplish their desired purpose will be continually monitored. Upgrades and improvements will be made as warranted.

### **Disease Vector Control**

The primary means of controlling disease vectors at the landfill will be to provide a daily cover over the working face of the disposal area at the end of each day. The cover will be provided in an attempt to prevent the propagation and harborage of rodents and insects, and to prevent odors which will attract rodents and insects to the site.

**Dead Animals.** Because refuse deposited in the landfill is limited only to that produced within the City of Bountiful limits, the need to dispose of dead animals is rare. If it becomes necessary to dispose of a dead animal, it will be deposited onto the working face at or near the bottom of the cell with other solid waste. It will be covered with at least six inches of earth to prevent odors, and the propagation and harborage of rodents and insects.

**Tires.** Waste tire piles, which tend to provide for mosquito breeding, and harborage of other vectors such as rats and other animals, will be excluded from the landfill.

### **Hazardous Waste Exclusion**

The Bountiful Sanitary Landfill will not knowingly dispose, treat, store, or otherwise handle hazardous waste or waste containing PCBs. This includes, but is not limited to; toxic and pathological/infectious waste, liquid waste, chemical wastes, asbestos containing wastes, and white goods containing chlorofluorocarbons.

Both the person at the gate and the person at the working face of the landfill will be trained in recognizing suspicious loads, including liquid wastes, drums, sealed containers, red bag wastes, and unusual markings or odors. All such waste will be refused access to the landfill.

As a means of keeping small quantity household hazardous wastes from being disposed of at the Bountiful Sanitary Landfill to the greatest degree possible, Bountiful City regularly conducts a household hazardous waste collection program. Under this program, the city accepts household hazardous waste from Bountiful residents and properly disposes of them. This both allows residents to be rid of hazardous materials, and also keeps them out of the landfill. A copy of the most recent flyer advertising this program is attached in Appendix E.

**Load Inspection.** All suspicious loads will be inspected by landfill personnel. Also, random inspections of loads will be performed by landfill operators. Random inspections will be performed at a frequency of approximately one load for every one hundred loads entering the landfill. The random inspections will be performed in addition to inspections of suspicious loads. Load inspections will be performed at an area near the landfill working face, but away from public access.

If hazardous materials are discovered during the inspection process, the load will be denied access to the landfill, and the Davis County Health Department, and The Utah Department of Environmental Quality will be notified. Access to the area will be restricted, and the hauler will be asked to park the load until a decision can be made as to the appropriate disposal options for the hazardous waste.

If no hazardous materials are discovered in the load, the waste will be allowed to progress to the working face. The Landfill Manager will have ultimate authority to decide whether to accept or reject waste material. If a question exists as to the acceptability of refuse, the load will most likely be rejected and not allowed to unload at the site. The form attached in Appendix C will be used to keep record of each inspection.

**Notification Procedures.** If hazardous waste or waste containing PCBs is discovered at the Bountiful Sanitary Landfill, the landfill operators will:

1. determine if any immediate threat to human health or the environment is present or imminent, if so, contact the Bountiful City Fire Department for emergency response;
2. request that the hauler park the truck until the County Health Department can make a decision as to proper handling of the waste;
3. notify the Davis County Health Department immediately;
4. notify the Utah Department of Environmental Quality Executive Secretary within 24 hours;
5. secure the area, and restrict the area from public access and from facility personnel;

#### **General Training and Safety Plans**

Training of landfill supervisors, managers, and on-site workers, will consist of a combination of classroom training and on-the-job training. The Landfill Superintendent and on-site Landfill Manager are certified by the Solid Waste Association of North America (SWANA) as a Certified Managers of Landfill Operation. Full time on site Landfill Operators have completed the SWANA Landfill Operator Training Course which covered sanitary landfill operator training and waste screening at municipal solid waste facilities. This or similar training will be provided for all landfill personnel responsible for inspecting and identifying hazardous waste. Copies of all certificates of completion and training are attached in Appendix D.

Training of new employees and continuing training of current employees will be under the direction of the Landfill Manager. Initial training of new employees will be completed during the first three months of employment, and yearly reviews of basic waste management skills. The specific schedule for training will be as follows:

- A. Introductory training (1/2 hour minimum). Overview Plan of Operations, Solid Waste Regulations, and Record Keeping.

Required: All personnel  
Method: On-the-Job Training / Seminars  
Review: Annual

- B. Policies and Procedures (1/2 hour minimum). Security, inspections, monitoring, and emergency response.

Required: All Personnel  
Method: On-the-Job Training, lecture, video media  
Review: Annual

- C. Safety (1 hour minimum). Personal protection, hazardous waste recognition and exclusion, hazardous materials handling, emergency response, and first aid.

Required: All Personnel  
Method: Lecture, video, seminars  
Review: Annual

### **Recycling Program**

The City of Bountiful currently has an active recycling program. The Bountiful Recycling Center is located at the city shops, at 950 South 200 West. Items that are accepted for recycling at this location are: newspaper, aluminum cans, glass food containers, tin food cans, plastic soda pop bottles (PETE), plastic milk jugs (HDPE), and polystyrene food trays (egg cartons, and hamburger boxes). A copy of the Bountiful Recycling Center flyer is attached in Appendix E.

Large recycling bays are available at the landfill near the entrance gate. These are used to separate recyclables from the waste stream including aluminum, steel, and white goods (appliances). Also, a recycling bin for used carpet padding is in use at the landfill.

Bountiful City also operates an aggressive green waste composting operation. Residents and haulers are encouraged to separate the green waste that they deliver to the Landfill for disposal. Green waste is processed into compost and sold back to the public in order to divert a portion of the flow of refuse into our landfill.



## FINANCIAL ASSURANCE PLAN

From 1962 to 1987 the Bountiful Sanitary Landfill operated under an Interlocal Cooperation Act Agreement as the Bay Area Refuse Disposal (BARD) by Davis County and six cities in the area. A "reserve fund" generated by tipping fees at the landfill was developed in order to cover closure costs. There was for a time, litigation regarding the future use of this fund. Because this fund was generated while all cities were members of BARD, the entities who now no longer used the landfill felt that part of the money in the fund belonged to them, and therefore should be removed from the fund and returned to them. Bountiful City contended that since all entities had used the landfill, all should be partially responsible for closure, post closure, and any necessary corrective action at the site. On December 20, 1989 a "*Settlement Agreement*" was completed and submitted to the six cities and Davis County which was signed by all. This agreement was accepted and became effective on January 10, 1990. A copy of the "*Settlement Agreement*" is attached in Appendix H.

The agreement includes a section dealing with the fund developed, and states:

*"Payment of BARD Fund."* Defendants hereby transfer, convey, and assign to Bountiful all of their rights, title, and interest to and in all monies currently deposited in Public Treasurer's Investment Fund, . . . , including accrued interest (herein referred to as the "BARD Fund"), the cash amount of which is approximately \$1,862,642.12. The BARD Fund is held and managed by the State Treasurer pursuant to the State Money Management Act of 1974, Utah Code Ann. Section 51-7-1 (1953 as amended).

The agreement also includes provisions for Davis County to help in providing clay cover material, and does not release the other cities from a share of financial responsibilities which may come from any necessary corrective action, or other necessary improvements due to past landfill operation.

According to a January 22, 1992 amendment to the Settlement agreement, a portion of the fund has been used to perform design and operational upgrades including improving cover and grading over existing landfill areas to prevent infiltration, and to promote runoff, and also realignment and lining of Barton Creek in an attempt to keep additional moisture from infiltrating into the refuse. The remainder of the fund is reserved for closure, post-closure, and corrective action financial assurance. The current balance in the fund is approximately \$660,000 (February, 2005). Interest to the fund continues to accrue, but no additional deposits into the fund are planned.

In addition to the above described fund, Bountiful City has established a Landfill Closure Fund. Prior to November 1996 contributions were appropriated annually and the amount varied each year. In November 1996, Bountiful City Entered into an "Escrow Agreement" with The Executive Secretary, Utah Solid and Hazardous Waste Control Board Department of Environmental Quality. At that time the Closure Fund was fully funded in the amount of \$1,200,000.00. No additional deposits are planned to this fund, but interest will accrue. The current balance to this fund is approximately \$1,700,000 (April 1998). A copy of the above described Escrow Agreement and a copy of recent Statements of Account from the Utah Public Treasurers' Investment Fund are included in Appendix H.

Because closure and post closure operations are planned to be performed "in house" by Bountiful City, no withdrawal of these funds for routine closure and post closure activities is planned. This will ensure that the funds will be available if corrective action ever becomes necessary, or if it ever becomes necessary for a third party to perform closure and/or post closure activities.

The largest area that may require closure at any one time is the first lift on the north half of the landfill. If closure were to become necessary at this point in landfill operations, approximately 50 acres would require final cover. Because closure of the side slopes will be accomplished as the fill is placed, required financial assurance for closure operations will decrease as subsequent lifts are placed.

Current closure and post closure costs are estimated for activities included in the current Closure and Post Closure Plans for the Landfill. Calculations are based on the unit costs and multipliers contained in the Utah Division of Solid and Hazardous Waste Guidance Document entitled "Preparation of Solid Waste Facility Closure and Post Closure Cost Estimates". Estimated closure and post closure costs, in current dollars, are as follows:

#### CLOSURE COSTS

### Landfill Information

Description	Quantity	Units
Total Permitted Area	100	acres
Active Portion (Soil Lined)	50	acres
Area of Largest Cell Requiring Final Cap	50	acres
Perimeter Fencing	7600	linear feet
Groundwater Monitoring Wells	327	VLF
Average Daily Flow	120	tons/day
Landfill Disposal Cost	21	\$/ton

### Closure Cost

Task/Service	Quantity	Units	Multiplier	Unit Cost	Subtotal
<b>Preliminary Site Work</b>					
Conduct Site Evaluation	1	Lump Sum	1	\$2,892.19	\$2,892.19
Dispose Final Waste	120	tons/day	5	\$21.00	\$12,600.00
Remove Temporary Buildings	1	Lump Sum	1	\$2,577.12	\$2,577.12
Remove Equipment	1	Lump Sum	1	\$2,103.50	\$2,103.50
Repair/Replace Perimeter Fencing	7600	linear feet	0.25	\$2.32	\$4,408.00
<b>Monitoring Equipment</b>					
Rework/Replace Monitoring Wells	327	VLF	0.25	\$43.54	\$3,559.40
Plug Abandoned Monitoring Wells	327	VLF	0.25	\$18.67	\$1,526.27
<b>Construction</b>					
Complete Site Grading	50	acres	1	\$1,179.93	\$58,996.50
Construct/Compact Clay Final Cap	121000	cubic yards	1	\$3.36	\$406,560.00
Place On-Site Topsoil	100883	cubic yards	1	\$1.58	\$159,395.14
Establish Vegetative Cover	50	acres	1	\$421.11	\$21,055.50
<b>SUBTOTAL</b>					<b>\$675,673.62</b>
<b>Administrative Services</b>	1	Lump Sum	0.1	\$675,673.62	\$67,567.36
<b>Technical and Professional Services</b>	1	Lump Sum	0.12	\$675,673.62	\$81,080.83

<b>Closure Contingency</b>	1	Lump Sum	0.1	\$675,673.62	\$67,567.36
<b>TOTAL FINAL CLOSURE</b>					\$891,889.18

## Post-Closure Cost

Task/Service	Quantity	Units	Multiplier	Unit Cost	Subtotal
<b>Site Maintenance</b>					
Site Inspections	4	per year	30	\$526.13	\$63,135.60
General Maintenance	1	per year	30	\$1,577.37	\$47,321.10
<b>Monitoring Equipment</b>					
Rework/Replace Monitoring Wells	327	VLF	0.25	\$43.54	\$3,559.40
Plug Abandoned Monitoring Wells	327	VLF	0.25	\$18.67	\$1,526.27
Final Plugging of Monitoring Wells	327	VLF	1	\$18.67	\$6,105.09
Final Plugging of Piezometers	300	VLF	1	\$14.73	\$4,419.00
<b>Sampling and Analysis</b>					
Groundwater Monitoring	30	Years	1	\$16,000.00	\$480,000.00
<b>Final Cover Maintenance</b>					
Repair Erosion, Settlement & Subsidence	100	acres	30	\$2.10	\$6,300.00
Reseed Vegetative Cover	100	acres	0.2	\$421.11	\$8,422.20
<b>SUBTOTAL</b>					<b>\$620,788.66</b>
<b>Administrative Services</b>	1	Lump Sum	0.06	\$620,788.66	\$37,247.32
<b>Technical and Professional Services</b>	1	Lump Sum	0.07	\$620,788.66	\$43,455.21
<b>Post-Closure Contingency</b>	1	Lump Sum	0.1	\$620,788.66	\$62,078.87
<b>TOTAL POST-CLOSURE</b>					<b>\$763,570.05</b>

**Total Closure plus Post Closure**

**\$1,655,459.22**

Bountiful City currently has sufficient balance in their Closure Fund to meet the regulatory financial assurance requirements.

## **CLOSURE PLAN**

This closure plan has been designed to minimize the need for future maintenance, minimize threat to human health and the environment from post closure escape of solid waste constituents, leachate, landfill gasses, contaminated runoff or waste decomposition products to the ground, ground water, or surface water, and prepare the facility for the post closure period.

### **Final Cover Installation**

Final Cover will be placed on finished areas as the refuse is being placed. Because the refuse will be placed in an area fill manner, final cover can be placed around the perimeter of the area as vertical fill progresses and on each phase as it is complete. At least 18 inches of well compacted, low permeability cover material will be placed on each area where no additional filling is planned. The clay cover will be placed within one week after placement of each portion of the final lift. Stringent compaction specifications will ensure that the final cover is no more permeable than the underlying soil. Our intent is to ensure that the infiltration layer achieves an equivalent reduction in infiltration as the layer specified in Subsection R315-303-3(4)(b).

Fifteen inches of topsoil will be placed over the compacted final cover in order to sustain growth of vegetation and provide protection from frost. The topsoil will be seeded with grass, or other shallow rooted vegetation which will not penetrate the topsoil layer. The topsoil and vegetation will be placed as soon as possible after placement of the final cover soil during an appropriate season of the year that will allow the seeds to germinate and grow on the slope (always within six months). Fifteen inches of top soil is being specified as opposed to the six inches required in the rules in order to provide protection to the underlying clay layer from dessication due to frost penetration. Our site specific frost penetration analysis can be found in Appendix I of this application.

## **Site Capacity**

The fill plan at the landfill site and compaction specifications have been designed to maximize the useable area of the landfill site, and to provide as much life as possible, while still providing for a stable, and sound engineered landfill. The site capacity has been determined based on side slopes of approximately 20%, and a minimum top slope of 2%.

**Assumptions.** Site capacity of the landfill has been calculated using the following assumptions:

1. Daily refuse handled currently averages approximately 120 tons per day. It is assumed that waste reduction and recycling programs, including composting operations, will offset increased population, to produce no increase in volume of refuse handled at the landfill above current levels.
2. The minimum compacted refuse density is 800 pounds per cubic yard. (This is conservative, and may easily reach 1000 pounds per cubic yard.) Based on an in place compacted density of 800 pounds per cubic yard, the volume of landfill space filled with refuse per day will be approximately 300 cubic yards. This volume, and keeping the working face to approximately 50 feet wide will require approximately 28 cubic yards per day of daily cover soil. If the option of using a synthetic alternative daily cover is employed, additional landfill space will be available, and daily cover material will not need to be imported. Site capacity calculations are based on using soil for daily cover, providing the most conservative estimate of landfill life.

**Calculations.** Calculations of available space for Phase I of the landfill operations indicate approximately 500,000 cubic yards of landfill space available for refuse and cover. Based on the above assumptions this phase can provide as much as four years of operation. These calculations were based on a contour map produced in May 1993. This phase was completed early in 1997.

Phase II has approximately  $5.0 \times 10^6$  cubic yards of landfill space available. This is the area currently being filled. Based on the above assumptions, this area will provide at least 40 years of operation.

Phase III has approximately  $2.5 \times 10^6$  cubic yards of landfill space available. Based on the above assumptions, this area will provide at least 20 years of operation.

Phase IV has approximately  $1.5 \times 10^6$  cubic yards of landfill space available. Based on the above assumptions, this area will provide at least 12 years of operation.

Based on the proposed fill plan, the landfill has a maximum life of over fifty years using the above estimates.

### **Implementation**

As discussed above, final cover, top soil placement, and revegetation will occur as each lift is placed. When the entire phase is completed, the majority of final cover will be in place, and only the top surface of the top lift will need to be closed. This will be performed upon completion of the final lift, so that each phase will be closed as it is completed.

### **Closure Costs**

Because the majority of closure operations will be performed as part of regular landfill operations, their costs will be absorbed in normal landfill operating expenses, and budgeted for in the annual budgeting process. No withdrawal of funds from the closure fund is anticipated for regular closure operations.

## **Final Inspection**

As closure of each phase of the landfill has been completed, landfill operators will submit, to the Solid and Hazardous Waste Division of the Utah Department of Environmental Quality, copies of the as built, approved unit closure plan sheets signed by a professional engineer registered in the state of Utah. Certification will be provided by the landfill operator and a registered professional engineer that the unit has been closed in accordance with the approved closure plan. Operators will then request a final inspection of the closed portion by applicable regulators. Upon approval of the closure of each section, post closure monitoring and maintenance will begin.



## **POST CLOSURE PLAN**

This post closure plan has been designed to provide continued facility maintenance and monitoring of gasses, land, and ground water for 30 years, or as long as regulators require for the facility to become stabilized and to protect human health and the environment.

### **Monitoring**

Semi-annual ground water monitoring and quarterly gas monitoring will continue as stated under the landfill specifications and plan of operations until evidence exists that little or no gas is being produced or becoming concentrated in dangerous amounts, and it is consensually determined by landfill operators and the Department of Environmental Quality that further monitoring is not necessary.

### **Maintenance**

Quarterly inspections of the monitoring systems, the facility, the facility structures, final cover, and run-on/run-off systems will be conducted at the landfill throughout the post closure care period. Any deterioration of any of the facilities, or systems will be noted on the inspection report and repaired promptly.

### **Implementation**

As discussed above, post closure care activities will begin upon completion of closure activities at each section of the landfill.

Individual phases of the landfill may be in differing stages of post closure care at the same time. When closure on the final stage of the landfill is completed, it is anticipated that part of the landfill (phases I, and II) may be nearing completion of the required post closure activities.

Continued post closure activities on phases III, and IV will provide for limited extended post closure activities on the entire landfill in order to maintain necessary facilities.

### **Record of Title, Land Use, and Zoning**

No specific plans have been outlined as to the future use of the land at the landfill site. However, it is anticipated that Bountiful City will retain ownership of the property. Keeping in mind that the future refuse disposal needs of Bountiful City must be addressed, plans at the landfill site may include operation of a transfer station, which could be expanded to provide for disposal needs even after the landfill is closed. Some possible recreational uses have also been speculated.

Regardless of the future use of the landfill site, changes to the record of title indicating that the property had been used as a sanitary landfill will be performed, and appropriate zoning restrictions will be proposed.

### **Post Closure Costs**

The cost for post closure care that is performed during operation of later phases of the landfill will be incorporated into regular landfill operating costs, and therefore will be minimal. No withdrawal of funds is anticipated during this time.

Post closure care that is performed after regular operations at the landfill have ceased will be under the direction of the Director of Public Works and will be performed by trained Bountiful City Employees. Maintenance will be performed when necessary with equipment owned by Bountiful City. Costs for these operations will be included in the annual budget for the department, and no withdrawal from the closure fund is anticipated.

## TECHNICAL DATA

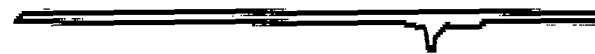
**USGS TOPOGRAPHIC MAP 7-1/2 MINUTE SERIES**

BSL-1

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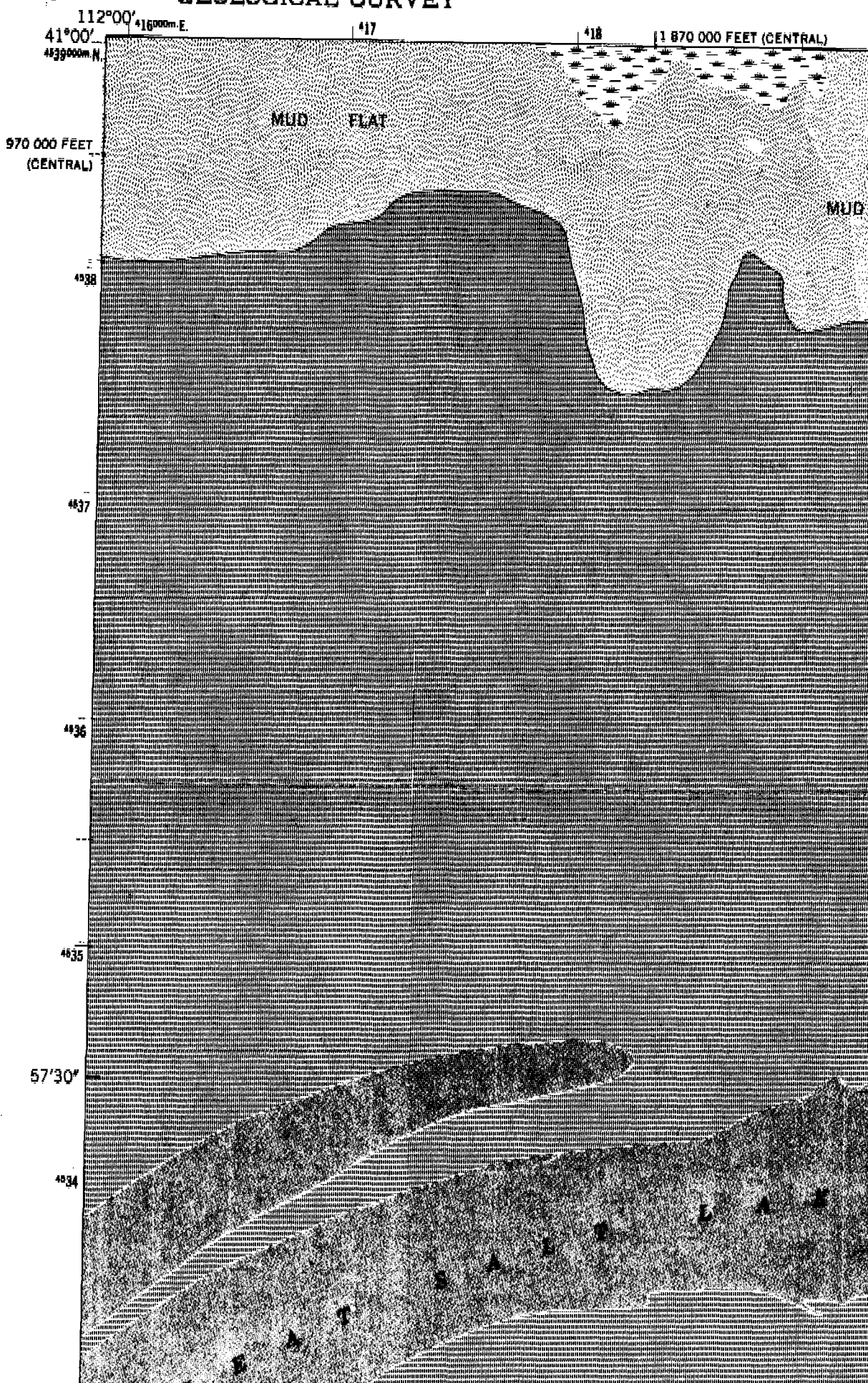


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UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY



## BOUNTIFUL SANITARY LANDFILL SPECIFICATIONS

Specifications for the Bountiful Sanitary Landfill have been prepared in an attempt to ensure continued operation of the landfill in a safe, efficient, and sanitary manner. Based on observations made of current operational procedures, and on apparent operations in the recent past, few, if any, operational changes will be necessary beyond those already planned in order to be in compliance with these specifications.

### Preparation of Site

1. **Access.** In order to avoid needless expense, it is important that collection vehicles are not delayed at the collection site and that all refuse is unloaded only at the working face. Because the refuse hauling time is unproductive for the refuse collectors, any unnecessary delays are costly, and can result in unfinished collection routes.

Therefore, access roads to the site and within the site shall be designed and constructed so that traffic will flow smoothly and will not be interrupted by ordinary inclement weather. All-weather access roads shall be provided from the entrance gate to the working face of the landfill. Maintenance shall be provided on the access roads as needed to keep the roads in good condition.

Fencing limits access so that indiscriminate unloading of refuse and accident hazards are minimized. Therefore, access to the site shall be limited by suitable fencing.

2. **Equipment Shelter.** Protection of equipment from the weather reduces deterioration and maintenance. Shelter is also necessary for equipment servicing; for routine maintenance; and for storage of tools, service equipment, spare parts, and other supplies.

Therefore, a permanent or temporary shelter of suitable size shall be provided to accommodate landfill equipment and other necessary supplies.

3. **Employee Facilities.** Shelter is necessary for protection of the landfill employees from inclement weather. Toilet and washing facilities, are necessary for good personal hygiene of the landfill employees, and of collection personnel.

Therefore, permanent or temporary shelter shall be constructed of adequate size, provided with safe drinking water, sanitary washing and toilet facilities, electricity, heating facilities, and proper ventilation.

4. **Weighing Facilities.** A method of measuring incoming refuse is necessary to provide reliable quantity data, to determine trends, and to estimate future disposal needs. Experience has shown that refuse quantities should be based on weight rather than volume if the data are to be reasonably accurate for comparative purposes. Weighing provides an equitable basis for establishing fees for refuse disposal. Weighing also provides the basis for cost analysis of landfill operations. In addition, weighing provides a means for the constant surveillance of collection crews and encourages the delivery of adequate payloads by each truck.

Therefore, suitable fixed or portable scales shall be installed and operational during the hours that the landfill is open. All loads shall be weighed prior to unloading to determine net weights delivered.

5. **Communications.** Communications are necessary at the landfill site, especially in cases of emergency. Personnel at the working face of the landfill, the scale house, and the operations center should be able to communicate with each other by means of two-way radio. Telephone communication should be available at the site for the purpose of communicating with emergency services if needed.



Therefore, two way radios shall be installed in landfill vehicles, scale house, and operations center, or at least three portable radios shall be available to landfill personnel for use when the landfill is open. Telephone communication shall be established and maintained at the operations center of the landfill and at the scale house.

6. **Fire Protection.** Fires endanger life and property. Smoke and odors create nuisances to surrounding property owners, violates state and federal air quality standards, and interfere with landfill operations.

Therefore, no fires shall be permitted at the landfill site. Any fire which occurs at the landfill shall be aggressively extinguished. This shall be accomplished by any combination of the following:

- a. An adequate supply of water under pressure shall be available at the site. This may include, a portable water truck or tank, and/or a standard fire hydrant connected to a suitable water supply.

and/or,

- b. A stockpile of earth shall be maintained reasonably close to the working face of the fill.

and/or,

- c. A nearby organized fire department shall provide immediate service whenever called.

Suitable fire extinguishers, maintained in working order, shall be kept in all landfill vehicles, on all landfill equipment and in all landfill buildings.

## Operations

1. **Limited Access.** If public use of a sanitary landfill is allowed when no attendant is on duty, scavenging and indiscriminate dumping commonly occur. It then becomes necessary to divert men and equipment to policing the area to restore sanitary conditions. When only authorized persons are permitted access to the site during operating hours, traffic and other accident hazards are minimized.

Therefore, the following procedures shall be employed to limit access to the landfill:

- a. The gate shall be open only when an attendant and equipment operator is on duty. The gate shall be locked at all other times.
  - b. Hours of operation and other limitations to access shall be displayed prominently on a sign at the entrance gate.
  - c. An attendant shall be on duty at the scales near the landfill entrance during operating hours and will be responsible for preventing unauthorized persons from entering the area.
2. **Unloading of Refuse.** Systematic placement of refuse, restricted to a small unloading area and coordinated with spreading and compacting operations, reduces work, minimizes scattering of refuse, and expedites unloading of collection vehicles.

Therefore, the following shall be performed at the landfill:

- a. Appropriate signs shall be posted to indicate clearly where vehicles are to unload.

- b. An attendant shall be on duty near the working face during operating hours to direct unloading of refuse.
- c. Unloading of refuse shall be confined to as small of an area as possible.
- d. A maximum of two small working faces will be active at the landfill. This will be to expedite unloading of vehicles hauling refuse and to separate commercial and private hauling vehicles.

3. **Blowing Paper.** The purpose of a sanitary landfill is to dispose of the refuse in a sanitary and nuisance-free manner. If papers and other light materials are allowed to be scattered by wind, then litter, fire hazards and other nuisances are created.

Therefore, blowing paper and litter shall be controlled in the following manner:

- a. Temporary and portables fence shall be placed near the unloading and spreading area to catch windblown paper and other light materials.
- b. The portable fence and surrounding area shall be policed regularly and all scattered material collected and placed in the fill.
- c. The perimeter fence surrounding the landfill is primarily for the purpose of access control, but also serves as an interceptor to blowing paper and other litter. It is the final defense against the litter leaving the landfill site. The perimeter fence shall be policed regularly, and all scattered material shall be collected and placed in the fill.

4. **Spreading and Compacting of Refuse.** A successful sanitary landfill operation depends upon the adequate compaction of the refuse. Settlement will be excessive and uneven when the refuse is not well compacted. Such settlement permits the ingress and egress of insects and rodents and severely limits the usefulness of the finished area.

Compaction is better initiated by spreading the refuse evenly in shallow layers than placing the material in a single deep lift. Further compaction is provided by the repeated travel of landfill equipment over the layers and by the use of special compacting equipment. Additional compaction also can be achieved by routing collection trucks so that they travel repeatedly over the finished portion of the fill. These procedures result in the greatest compaction and the least ultimate settlement, providing the most useful finished fill and best utilizing the capacity of the site.

Therefore spreading and compacting the refuse shall be accomplished by incorporating the following:

- a. Additions of refuse shall be spread evenly by repeated passage of landfill equipment.
  - b. Each layer shall be compacted thoroughly to a depth not greater than 2-3 feet.
  - c. The refuse fill shall be continued to the total depth of lift by repeating (a) and (b) above.
5. **Depth of Lifts in Fill.** The total depth of a landfill is governed by the characteristics of the site, the desired elevation of the completed fill and good engineering practice. Construction of a fill in well compacted lifts of not more

than ten feet in depth minimizes settlement, surface cracking, and release of odors.

Therefore all lifts shall be ten feet or less in depth.

6. **Daily Cover.** Daily covering of the refuse is necessary to prevent fly and rodent attraction, blowing of litter, production of odors, fire hazards, and an unsightly appearance.

Therefore the working face of the landfill operation shall be covered at the end of each working day. As an alternative to the common means of daily soil cover, other materials are often acceptable to prevent fly and rodent attraction, blowing of litter, and unsightly appearance. These alternate methods are especially desirable, because they decrease the amount of cover material necessary to be imported to the landfill site, and also conserve significant amounts of available landfill space.

Via this permit application, Bountiful City is requesting approval to use the following procedures as acceptable daily cover:

**Soil.** At least six inches (measured perpendicularly to the surface of the compacted refuse) of well compacted soil cover material shall be placed daily to completely cover all refuse deposited that day.

**Wood Chips.** An alternate material available for use as daily cover is wood chips produced in the landfill chipping operation. If this material is used, at least six inches (measured perpendicular to the surface of the compacted refuse) of well compacted chips shall be placed daily to cover completely all refuse deposited that day. The wood chips should only be used for cover if no other beneficial use of the chips is available or if the

amount of chips produced is in excess of the amount that can be used beneficially. In other words, if excess chips are to be disposed of in the landfill, they are acceptable for use as daily cover rather than simply disposing of them in the landfill cell.

**Geomembrane/Nylon Mesh** . Another acceptable method of alternate daily cover is the use of a geosynthetic membrane or nylon mesh. If used, the membrane or mesh netting shall be placed over the open face at the end of each working day in order to prevent blowing litter and control vectors. The major benefits of this cover method is the increased useable landfill space, and the reusability of the membrane. Also, the amount of necessary imported cover soil is decreased.

7. **Intermediate Cover.** More than one foot of soil cover is wasteful in a landfill where there is a clear intention to provide additional lifts in the future. Under such circumstances, a one foot layer of properly compacted and maintained cover will prevent health hazards or nuisances until the next lift is placed.

Therefore, intermediate cover shall be applied as follows:

- a. At least one foot (measured perpendicularly to the surface of the compacted refuse) of well compacted cover material shall be placed daily on all surfaces of each lift on which another lift will be constructed, except where six inches of daily cover are provided as specified above.
  - b. The entire surface of the intermediate cover shall be inspected weekly and all cracked, eroded, and uneven areas repaired.
8. **Final Cover.** A minimum final cover of 18 inches of compacted earth will prevent the emergence of insects from the compacted refuse, minimize escape of

odors and gases, prevent infiltration of water and leachate production and prevent rodent burrowing. This cover also provides adequate bearing surface for vehicles and sufficient thickness for cover integrity in the event of settling or erosion. Erosion of the final cover layer can be prevented by placing topsoil and vegetation over the compacted final cover.

Therefore, final cover shall meet the following specifications:

- a. The soil constituting the final cover when compacted shall be capable of producing permeabilities for water of not more than the natural subsoils present below the landfill.

Because the soil used for cover material is the same soil as the natural subsoils present at the site, we are specifying stringent compaction specifications in an attempt to ensure that the final cover is no more permeable than the underlying soil. The stringent compaction specifications will ensure that the infiltration layer achieves an equivalent reduction in infiltration as the layer specified in Subsection R315-303-3(4)(b).

- b. At least 18 inches (measured perpendicularly to the surface of the compacted refuse) of well compacted cover material shall be placed within one week of the completion of each portion of the final lift.
- c. At least fifteen inches of fertile topsoil shall be placed over the compacted final cover in order to sustain growth of vegetation. The topsoil shall be seeded with grass, other shallow rooted vegetation which will not penetrate the topsoil layer. The topsoil and vegetation shall be placed as soon as possible after placement

of the final cover soil (always within six months), but should be done during an appropriate season of the year that will allow the seeds to germinate and grow on the slope. The additional nine inches of top soil specified is to prevent frost penetration and dessication of the underlying clay layer.

- d. Until closure and post closure activities are initiated at the landfill, the entire surface of the final cover shall be inspected monthly and all cracked, eroded, and uneven areas shall be repaired.

9. **Equipment Maintenance.** Equipment breakdowns of a day or more may result in the accumulation of refuse as in an open dump with all the attendant health hazards or nuisances. Systematic, routine maintenance of equipment reduces repair costs, increases life expectancy, and helps to prevent breakdowns that interrupt landfill operations. In event of breakdown, prompt repair of equipment or immediate procurement of standby equipment insures continuity of operations. Special advance arrangements for making major repairs and for providing standby equipment will materially reduce down time. Prompt repair of equipment and availability of standby equipment insure continuity of operations.

Therefore, equipment maintenance shall include:

- a. Routine maintenance and inspection of landfill equipment shall be performed on a schedule that meets or exceeds the recommendations of the equipment manufacturer.
- b. Inoperative equipment shall be repaired within 24 hours. When this is not possible, another piece of equipment shall be temporarily reassigned to fill in for the inoperative equipment, or the equipment shall be temporarily or permanently replaced.



10. **Vector Control.** While operation of a sanitary landfill according to these specifications will reduce insect and rodent problems to a minimum, any lapse in proper operating procedures or even changes in climatic conditions may result may result in attraction and rapid production of insects and rodents. Supplemental vector control measures may occasionally be necessary to prevent health hazards or nuisances.

Therefore, proper maintenance of daily, intermediate, and final cover; adequate drainage; and compliance with other landfill standards shall be performed promptly and in a systematic manner.

If it becomes apparent that vectors are present on the landfill site in uncontrolled numbers, supplemental vector control in the form of professional extermination or pesticides placed under the direction of a professional exterminator shall be performed within 24 hours.

11. **Dust Control.** Excessive dust violates air quality regulations, slows operations, creates accident hazards and aesthetic problems, and may cause eye and respiratory irritation or other injury to landfill personnel or users.

Therefore, suitable measures shall be taken to control dust wherever necessary on the site or on the access roads. These measures may include moisture conditioning the dusty areas with a water truck, portable water tank, or fire hydrant and hose.

12. **Drainage of surface water.** Runoff from above the fill and rain falling on the fill may, unless diverted, leach into the fill and pollute ground or surface water with the leachate. Cover soil may be removed by erosion. Standing water may permit mosquito breeding and interfere with the operation of the landfill.

Therefore, the following means shall be employed to promote drainage of surface water from the landfill area:

- a. Construction of the landfill shall proceed in a manner which causes all runoff from the active face of the landfill to drain toward the borrow ditch areas along the main haul road in the center of the landfill, (see Runoff Control Plan in Appendix B). The borrow ditch adjacent to the haul road will move the runoff water to the storm water retention pond where it will be allowed to evaporate.
- b. The surface of intermediate covered fill shall be smooth and graded to a minimum slope of 1%.
- c. The surface of the final covered fill shall be smooth and graded to a minimum slope of 2%.
- d. Maximum slope of the sides or toe of the completed fill shall not be greater than 30% and the slope shall be adequately protected from erosion by vegetation or rip-rap. The bottom of the slope shall also be protected from raveling. The slopes shall be constructed to provide surface drainage that prevents ponding.
- e. Regular inspections shall be made for standing water on the site and on the access roads. All accumulations of water outside of the run-off collection/evaporation pond shall be eliminated.

13. **Supervision of Operations.** The operation of a landfill so that no health, nuisance, or aesthetic problems result is best accomplished when the work is directed by a responsible person who is both able to understand and to implement the plans and specifications.

Therefore, the landfill operation shall be directed by an individual deemed qualified as a *Certified Manager of Landfill Operations* by the Solid Waste Association of North America, or similar certification by a similar organization.

14. **Accident Prevention and Safety.** The use of heavy earth-moving equipment, the maneuvering of collection trucks and other vehicles, and the occasional hazardous materials that may be present in the refuse can create accident-prevention problems at landfills. The relatively remote location of the landfill makes it particularly important that personnel be oriented to accident hazard, trained in first aid, and provided with first aid supplies. For reasons of safety, access should be limited to those authorized to use the site for disposal of refuse.

Therefore, the following shall be employed at the landfill to promote accident prevention and safety:

- a. At least one person with formal first aid training shall be on site during operating hours.
- b. An educational program shall be maintained on safety and first aid.
- c. Adequate first aid supplies shall be available at the site at all times.
- d. Access to the site shall be limited as specified above.

## GEOHYDROLOGICAL ASSESSMENT REPORT

This section of the permit application presents a summary of the regional geologic and hydrogeologic setting around the Bountiful Sanitary Landfill and the local soil and ground water conditions at the landfill. The information was generated from published material by the U.S. Geological Survey (USGS), the Utah Geological and Mineral Survey (UGMS), and other publications, combined with two reports prepared for the City of Bountiful by private consultants. One of the reports was prepared by EMCON Associates entitled "Geotechnical Investigation and Waste Management Studies; BARD Disposal Site". The other was prepared by James M. Montgomery, Consulting Engineers, entitled "Groundwater Quality Assessment Report for the BARD Landfill."

### Geology

**Regional Conditions.** The Bountiful Sanitary Landfill lies on the eastern shore of the Great Salt Lake, which is situated in the Basin and Range physiographic province. The Basin and Range Province is characterized by parallel northwest-trending mountain ranges separated by alluvium filled valleys. The Great Salt Lake Basin consists of a broad, flat valley bordered by the Wasatch Mountains on the east, and the Oquirrh Mountains on the West. The Basin and Range physiographic province is further characterized by internal drainage to closed depressions in the valley bottoms. The Great Salt Lake is the largest of these depressions in northern Utah.

The eastern margin of the Basin and Range physiographic province is the Wasatch Fault located at the base of the Wasatch Mountains approximately 2 miles east of the landfill area. Areas east of the Wasatch Fault lie within the Middle Rocky Mountains physiographic province, which is characterized by generally high mountain ranges and plateaus transected by deeply incised erosional valleys.

The Wasatch Mountains in the area of Bountiful are composed mainly of metamorphic and granitic rocks. These materials are typically Precambrian in age (greater than 600 million years

old) although some Tertiary age (approximately 50 million years old) gravels are located south of Bountiful. The Principal rock type is highly metamorphosed gneiss assigned to the Farmington Canyon Complex Formation. The Gravels south of Bountiful are found on the surface of the mountainsides and consist of angular pebbles, cobbles, boulders, sand and silt sized grains eroded from nearby parts of the Wasatch Range.

Sediments in the Salt Lake Valley were deposited by prehistoric Lake Bonneville as lacustrine sediments. These soils are typically interbedded silty clays and clayey silts with some sandy and gravelly layers. Some layers, especially the clay deposits, are laterally continuous. The coarser grained deposits tend to grade finer toward the west, and the thickness of these coarse grained layers generally decreases and tend to eventually pinch out. Thickness of the valley fill in the area north of the landfill is estimated to be greater than 2000 feet.

**Local Conditions.** Soil and ground water conditions at the site were investigated by reviewing the logs from existing ground water monitoring wells, test borings, and examining excavation cut slopes associated with on-going landfill operations. The excavation cut slopes provided detailed data on soils in the shallow zone beneath disposal areas. Test boring information, together with logs of existing monitoring wells, supplied information on the nature of the subsurface soil and ground water underlying the disposal site.

The natural slope of the site is very slight (generally less than 1%) toward the west. For this reason, natural unstable slopes do not exist. Slope failure in excavation cuts and mounds created during the landfiling process may present slope stability concerns if they are over-steepened or become saturated.

Ground subsidence at the site is not anticipated. However, differential settlement of the refuse fills, and underlying clay soils due to increased overburden pressure from the weight of the refuse and cover materials should be anticipated and included in landfill design parameters.

Excavation cut slopes and the logs from exploratory borings and ground water monitoring wells confirmed that subsurface soil conditions beneath the site are generally consistent with the regional conditions described earlier. The test boring logs revealed the site is underlain by silty and sandy clays with occasional thin (generally less than 1.5 feet thick) mostly discontinuous interbeds and lenses of sand and sandy silt. Field and laboratory analyses showed that clay soils are classified as CL (low plasticity clay), and the interbeds and lenses of silty sand are classified as SM (sand-silt mixture) by the Unified Soil Classification System. Laboratory permeability tests performed on undisturbed samples of the clay soil underlying the site produced permeabilities in the range of  $1 \times 10^{-8}$  cm/sec. In the JMM report, the consultants identified a distinct layer of red clay which they identified as a marker bed. This clay layer had a uniform consistency, and it predictably occurred beneath a silty sand layer in each of the borings.

The slope of the soil layers can be measured with the red clay marker bed. The cross sections attached in Appendix F show a planar surface that dips towards the northwest at approximately 0.6 percent, or 30 feet per mile. The presence of an aerially extensive layer demonstrates that the entire landfill is underlain by a continuous clay layer, which should effectively isolate the refuse from deeper soil layers and water bearing units.

An interpretation of the soil beneath the Bountiful Sanitary Landfill is presented on the cross sections attached in Appendix F. These cross-sections were prepared by James M. Montgomery Consulting Engineers, Inc. (JMM) in 1988. One cross section presents a southeast to northwest view, which is parallel to both the direction of the dip of the soil units, and the general direction of the ground water flow. The other cross section shows a view parallel to the north perimeter dike, which is down gradient from most of the landfill.

Several fine sand and silty fine sand layers ranging from 1 foot to less than 1 inch thick were identified in most of the borings. As shown in the cross sections, some of the sand layers may be continuous beneath the landfill. The Sand layer immediately on top of the red clay marker bed was selected as the water bearing layer by JMM and they completed several groundwater monitoring wells with screen in this layer.

Although the sand layers decrease in thickness and increase in silt content toward the northwest, they occur predictably in the sequence of soil types encountered in the soil borings from both reports described above. This would indicate that some of the soil layers may be continuous beneath the landfill, but it appears permeability decreases, and that the sand layers "pinch out" at some distance either beneath or west of the landfill.

## **Hydrogeology**

**Regional Conditions.** The area between the east shore of the Great Salt Lake and the Wasatch Mountain Range from the mouth of the Jordan River to the south, to the mouth of the Bear River to the north is defined as the East Shore Ground Water Province. The province is further subdivided into three subareas or ground water districts. The Bountiful Sanitary Landfill lies in the Bountiful District, which includes the east shore areas south and east of the Farmington Bay Bird Refuge.

Sediments at the base of the Wasatch Range consist mainly of coarse grained delta, slope wash and alluvial deposits which grade westward to predominantly fine-grained lacustrine deposits. The aquifers consist primarily of sand, gravel, or mixtures of materials. A major portion of the water infiltration into the aquifers occurs along the base of the mountains where coarse sediments occur near the ground surface.

In general, ground water in the East Shore Province is found mainly under artesian conditions in a multi-aquifer system and moves generally westward from the recharge areas along the Wasatch Front toward the Great Salt Lake. Some of the Ground water is intercepted and discharged by wells; some moves through overlying confining beds and is discharged onto the ground surface as springs; some discharges directly into the Great Salt Lake, and some continues through the aquifers westward under the Great Salt Lake.

In the Bountiful District, ground water is produced from three, deep artesian aquifers. The tops of the aquifers range from 60 feet to more than 500 feet below ground. Their thicknesses vary,

and it is frequently not possible to distinguish among aquifers. Most wells in the western Bountiful District are small diameter, and flow under artesian conditions. Water produced from these wells is used for stock watering, irrigation, and domestic purposes.

**Local Conditions.** The occurrence of ground water beneath the disposal site was evaluated by correlating information obtained from a reconnaissance of the site, existing groundwater monitoring wells, and results of semi-annual sampling and analytical testing of the shallow groundwater over the past several years. Shallow groundwater at the site was found perched within the beds and lenses of sand and sandy silt within the predominantly clay soils. The uppermost groundwater was generally encountered at depths ranging from 4 to 12 feet beneath ground surface. The location of the wells combined with corresponding groundwater elevation, suggests a gentle flow gradient in the shallow groundwater toward the northwest. The horizontal movement of the shallow groundwater is limited however, due to the predominance of extensive, low permeability clay deposits beneath the site. Laboratory tests have confirmed that these clays have natural permeabilities in the range of  $10^{-8}$  cm/sec. Downward movement of the shallow groundwater probably does not occur at the site due to the above described upward artesian piezometric pressure from the deeper aquifers. The source of the water in the shallow sand lenses is probably a combination of upward seepage from the deeper artesian aquifers and infiltration of surface water.

**Shallow water bearing zones.** As shown in the landfill cross-sections attached in Appendix F, some of the lithologic units may be continuous beneath the landfill. All of the JMM monitoring wells, with the exception of JMM-5, are screened in the uppermost silty sand layer which lies beneath the landfill. A review of the soil boring logs shows that the consistency of this layer ranges from a clean fine sand approximately 1 foot thick to interbedded silty fine sands and fine sandy silts approximately 3.5 feet thick. At several locations, approximately one inch thick silty clay layers are interbedded in the sandy zone.

In-situ permeability tests were performed by JMM in the eight wells that they placed at the landfill site. The hydraulic conductivities in the shallow zone ranges from a low of  $6.0 \times 10^{-4}$



centimeters per second (cm/sec) in JMM-4, to a high of  $2.8 \times 10^{-3}$  cm/sec in JMM-3. These values are typical for the silty sand deposits in which the monitoring wells are screened.

The 1-foot thick layer was the most transmissive, shallow water-bearing zone identified immediately beneath the landfill. Although it transmits ground water to some degree, it has none of the properties that are typically associated with an aquifer. It contains non-potable water with naturally degraded water quality, and it is not thick enough to readily yield water to wells. Therefore, the sand layer will be referred to as the uppermost "water bearing zone".

Groundwater also occurs in the refuse, and the water table in the refuse is monitored by wells JMM-5 and DC-4. Water accumulates in the landfill from precipitation, limited groundwater inflow, and moisture imported within the refuse. The water table in the refuse appears to extend to the perimeter of the landfill as indicated by the water levels measured in DC-4, which is located at the northern edge of the landfill. A groundwater elevation contour map is attached in Appendix F; this shows groundwater elevations based on data gathered from the wells in 2003.

**Deeper water bearing zones.** In addition to the shallow zones discussed above, several other relatively transmissive sandy layers were identified at greater depths in the piezometer borings performed by JMM. These sandy zones range from one inch to several inches in thickness, and also change in consistency from clean sands to silty fine sands and fine sandy silts depending upon the location. These deeper layers differ from the shallow layers because the ground water is under artesian conditions in the deep layers. However, the deeper water-bearing zones are similar to the shallow layer because they also do not have the properties of an aquifer.

**Shallow Ground Water Surface.** Descriptions of the ground water surface are based on ground water levels measured in the monitoring wells on site. The ground water elevations for all wells and the piezometers are summarized in the table attached in Appendix F. In addition, a contour map for the shallow water bearing zone based on average water levels is attached in Appendix F.

Water levels measured in the piezometers represent artesian conditions at depth and are discussed in the following section.

Examination of the groundwater contour map shows that a relatively flat area in the groundwater surface exists within the refuse in the center portion of the landfill. The groundwater surface elevation appears to be uniform within most of the landfill then drops off steeply to the static groundwater level of the upper most water bearing zone, generally near the level of the Great Salt Lake.

The steepest ground water elevation contours exist along the northern boundary of the landfill in the vicinity of monitoring wells DC-4 and JMM-7. The water level differs substantially between these two wells, which are in close proximity to one another. The steep gradient is maintained by low permeability sediments which act as a subsurface "dam" between the groundwater in the refuse (DC-4), and ground water outside the refuse zone (JMM-7). This condition indicates the potential of the soil to retard the release of leachate from the landfill. This condition is exaggerated by the depth of the screened area in each of the wells. Well DC-4 is a deeper well than JMM-7, and the upward gradient at the site also has an effect on the static groundwater levels in the two wells.

Shallow ground water levels within and adjacent to the landfill are strongly influenced by the Great Salt Lake level. Since 1985, shallow ground water levels in the wells have fluctuated in parallel with the Great Salt Lake. Ground water levels and the lake level rose about 3 feet during a period from 1985 to 1987, and since that time both the lake level and the Groundwater level have been generally declining.

Water levels in monitoring well DC-4, which is screened within the refuse, have not been as variable as the water levels in other wells. Although the DC-4 water level rose in parallel with the others, it has declined only slightly since it peaked in March 1987. This suggests that the sediments beneath the landfill transmit water very slowly out of the landfill.

**Deeper Ground Water Surface .** The piezometric surface of the ground water measured in the piezometers are generally 1 to 6 feet higher than that of the shallow ground water measured in the adjacent monitoring well. The piezometers tap water-bearing zones at 35 to 45 feet below ground, while the monitoring wells were completed in a 1-foot sand layer at 9 to 20 feet below the ground. The differences between ground water elevations measured in piezometers and monitoring wells demonstrate that an upward hydraulic gradient exists beneath the landfill. That is, ground water tends to flow vertically upward because the potentiometric head increases with depth.

It is likely that there is hydraulic communication between the Great Salt Lake and the sand layers at depth beneath the landfill. Ground water in these layers flows underneath the landfill and discharges into the lake, driven by the hydraulic gradient between the sand layers and the lake. It is unlikely that any deep ground water flows upward into the landfill because it preferentially flows horizontally through sand layers into the Great Salt Lake. The sand layers are much more permeable than the clay layers, so ground water flows more readily in the sand layers.

### **Seismicity**

The zone of seismic activity traversing Utah is comprised of several major faults. The Major fault closest to the disposal site is the Wasatch Fault located approximately 2 miles to the east.

Seismic activity has been documented in Utah since 1850, and reveals that sporadic earthquakes have been concentrated in the northern and southern portions of the Wasatch Front. Six extensively damaging earthquakes, with intensities ranging from VII to IX, and at least ten which resulted in minor damage, have been recorded. However, ground displacement following an earthquake in Utah has been recorded on only one occasion. Based on this record, it is likely that the disposal site vicinity will experience the effects of seismic activity in the future.

According to the Open-File Report 82-1033 published by the United States Department of the Interior, Geological Survey entitled *"Probabilistic Estimates of Maximum Acceleration and Velocity in Rock in the Contiguous United States"* by S. T. Algermissen and others, the horizontal acceleration in rock with 90 percent probability of not being exceeded in 50 years is 0.20g in the vicinity of the landfill.

### **Water Rights**

Based on a March 11, 2005 internet search of the Utah Department of Water Rights records, there are no water rights of record within a 1 mile radius of the landfill site. There are no records of any private or public wells within a 2000 foot radius.

### **Surface Water**

The Bountiful Sanitary Landfill is located near the southeast shore of the Great Salt Lake. Other surface water within a one mile radius of the site consists of the following:

- Barton/Stone Creek which runs in a concrete lined channel immediately south of the site.
- A 2000 foot long by 800 foot wide man made fresh water pond located south of the landfill.
- Mill Creek which is located south of the above described pond.

Barton/Stone Creek originates as runoff from the west face Wasatch Mountains and flows south of the landfill into the east end of the fresh water pond. The trapezoidal shaped concrete lined channel in which the Creek flows was constructed in 1991 and is designed to carry flows from these creeks which would be produced by a 100-year storm event. No flood plain would be produced in the vicinity of the landfill from a 100-year storm.

Mill Creek also originates as runoff from the Wasatch Mountains and flows from the south into the south edge of the pond. Any flood water that comes from Mill Creek will discharge into the pond and will be discharged into the wetlands of Farmington bay. No part of Mill Creek is adjacent to the landfill. Therefore, landfill operations will be unaffected by flooding in Mill Creek.

The pond was created in 1991 under a permit from the U.S. Army Corps of Engineers. It was built as part of a larger plan to move Barton/Stone Creek out of the landfill site, and to obtain cover material for landfill operation. The cover material was removed from the area south of the landfill, which produced a planned pond to serve as a sediment trap, and wetlands restoration. Infiltration of stream water from Barton/Stone Creek into the landfill has been halted due to the concrete lining of the channel, and it's realignment away from the refuse disposal area.

During the early to mid 1980's the high level of the Great Salt Lake had significant impacts on the landfill, and the surface and ground water in the area of the landfill site. During 1985-86, dikes were constructed around the perimeter of the landfill in order to prevent the lake from intruding into the landfill areas and to prevent washout of solid waste to the lake. Portions of the landfill area to the south and west (in the area of the new pond and wetlands) were completely inundated by the lake and portions of Barton/Stone Creek were overtopped by the lake. During the highest level of the lake, the entire landfill was surrounded by open water from the Great Salt Lake except for the entry road on the south east corner of the site, which remained open.

The dikes which were placed during 1985-86 proved effective in preventing surface encroachment of lake flood water from entering the landfill site. They were also effective in preventing the washout of refuse from the landfill site by the flood waters. Registered professional engineers from Postma Engineering Inc. performed an on-site inspection of the dikes in 1987 and in their June 1987 report prepared for the BARD Board of Directors stated "We have evaluated the dikes and found them to be sufficiently stable." Past performance of the dikes during highly variable conditions verify Postma's conclusions. These shallow dikes, however are relatively permeable. They are constructed of granular materials obtained from the

excavation of debris basins constructed in the eastern foothills. Therefore these dikes, although effective in preventing washout of refuse, may do little to keep water from infiltrating into the landfill site if the lake water level rises to these levels again. However, the Great Salt Lake pumping project, which was initiated around peak lake levels, was designed to keep lake water levels below elevation 4212. Therefore the likelihood of lake water reaching elevations high enough to cause problems of infiltration to the landfill is greatly diminished.

### **Ground Water Quality**

**Deep ground water.** Ground water from several deep wells (250-600 feet deep) penetrating the underlying aquifers in the site vicinity has been periodically sampled and subjected to laboratory analysis by the State of Utah. These off-site analyses indicate that the ground water sampled is of a sodium bicarbonate type, has a total dissolved solids (TDS) content of approximately 250 milligrams per liter, and is generally of good quality.

**Shallow ground water.** Operators of the Bountiful Sanitary Landfill have had a shallow ground water monitoring system in place and operating for many years. Based on the information obtained from this program, it has been determined that unlike the deeper ground water, the background quality of the uppermost ground water is poor, and is of no beneficial use. Due to the age of the landfill, (refuse has been being deposited in this area since approximately 1960) it is not possible to determine the background quality of the ground water prior to any landfilling activities. It is expected however, that the shallow ground water in the area has always been of poor quality and lacked beneficial use due to the natural environmental conditions. Many of the "Constituents for Detection Monitoring" in section R-315-308-4 of the "Solid Waste Permitting and Management Rules" are detected both upgradient and down gradient from the landfill.

As would be expected, the ground water quality becomes substantially degraded as it moves closer to the Great Salt Lake. This is due to lake water intrusion into the water bearing strata. Lake water intrusion would cause an increase in total dissolved solids and many of the major ions. This theory is validated by the data obtained during the ground water monitoring program.

A copy of the ground water monitoring reports have been submitted and are on file at the Utah Department of Environmental Quality (DEQ) offices. A statistical analysis of the groundwater monitoring data at the landfill has been submitted annually to the DEQ since January 1999. Information obtained and analyzed through the ongoing groundwater monitoring at the site is used to form opinions and make recommendations for future groundwater monitoring program amendments. Landfill operators will work closely with regulators in order to ensure that all necessary information is obtained and all groundwater quality concerns are addressed at the landfill.

### **Site Water Balance**

A water balance for the landfill was calculated by James M. Montgomery Consulting Engineers, Inc (JMM) in their report entitled "Groundwater Quality Assessment Report for the BARD Landfill". The calculated water balance is attached in Appendix F.

### **Conceptual Design of Ground Water Monitoring System**

The groundwater monitoring system at the landfill site was developed and installed in at least three phases. Well numbers DC-1 through DC-4 were installed in 1985 by the Davis County Health Department. The intent of these wells was to provide one upgradient and three down gradient monitoring wells at the landfill site. Typical monitoring well schematics, and logs of the borings performed are attached in Appendix E.

In 1988, James M. Montgomery Consulting Engineers, Inc. performed a detailed assessment of the groundwater at the site which included placing eight additional ground water monitoring wells (JMM-1 through JMM-8), and seven deeper piezometers (P-1 through P-5, and P-7 & P-8) at the site. All piezometers are located within 15 feet of a shallow monitoring well for the purpose of determining the presence and magnitude of upward artesian pressure in the deeper water bearing zones. JMM consultants described the rationale used in determining monitoring well locations as follows:

## MONITORING WELL DESIGNATION

## RATIONALE

JMM-1	Characterize shallow upgradient ground water quality at a distance from the south side of the landfill.
JMM-2	Examine shallow upgradient ground water quality adjacent to the southwest landfill property corner.
JMM-3	Characterize shallow upgradient ground water quality at a distance from the east side of the landfill.
JMM-4	Examine shallow ground water quality along the east side of the landfill property.
JMM-5	This well is screened in the refuse. It's purpose is to characterize the chemical composition of the groundwater in the refuse for comparison with other wells at the landfill.
JMM-6	Examine shallow down gradient ground water quality along the west boundary of the landfill property.



JMM-7

Examine shallow down gradient ground water quality along the north boundary of the landfill property.

JMM-8

Examine shallow down gradient groundwater quality at the northeast property corner.

It is our understanding that commonly accepted practice was employed in placing the above described wells. Based on the serviceability of the wells over the past several years, this appears to be the case. Silt in the wells is minimal, and there appears to be no surface contamination of the ground water due to improper installation of the wells. Typical monitoring well schematics, and logs of the borings performed by JMM in 1988 are attached in Appendix E.

Several consultants have prepared reports dealing with the geology and hydrogeology at and around the landfill site. We have spent considerable time reviewing the well schematics, boring logs, and soil profiles from these reports. This review produced several concerns about the data provided by previous sampling and testing of groundwater. These concerns included the following: 1.) that some of the wells on site are actually be placed through refuse, 2.) that other wells may be placed through refuse, but the boring logs are unclear on this fact, 3.) that the wells may not all be screened in the same water bearing zone, and 4.) that the upgradient wells are placed at large distances from the landfill boundary. Based on these concerns we made the decision to place one new upgradient well at the landfill boundary, and two new down gradient wells well outside of the area where any refuse is placed. Well Schematics for these and boring logs for the new wells are attached in Appendix E. Every effort was made to ensure that the concerns of the previous wells were addressed in the new wells. The three new wells are used as background and compliance points.

Fifteen ground water monitoring wells, and seven deep piezometers surrounding the landfill site appear to be sufficient to determine ground water quality and parameters of the aquifers as

needed. If it is determined that additional monitoring wells are necessary at the site, installation plans and specifications will be prepared and submitted.

## ENGINEERING REPORT

Refuse disposal operations at the location of the Bountiful Sanitary Landfill began around 1960. At that time minimal considerations were given to environmental concerns in landfill design, planning and operation at the site. The site was operated for many years as an open dump. Later large trenches were excavated and filled with refuse. Open burning was allowed, and refuse was accepted from most of South Davis County. In the late 1970's and 1980's as landfill regulations began to be proposed and implemented nationwide the area began receiving attention from environmental regulatory agencies such as the U.S. Environmental Protection Agency and the Davis County Health Department. Groundwater monitoring at the site began in 1985 by the Davis County Health Department. In 1987, when Bountiful City became the sole owner/operator of the site, improvements at the site began which would bring the landfill into compliance with State and Federal Solid Waste Permitting and Management Rules and would eventually lead to the Bountiful Sanitary Landfill obtaining a Permit from the Department of Environmental Quality Division of Solid and Hazardous Waste (DEQDSHW) to operate a Class I Sanitary Landfill. In 1988 landfill operators retained the services of James M. Montgomery Consulting Engineers, Inc. (JMM) to perform a detailed groundwater analysis at the site. Over the next several years site improvements and operation enhancements were implemented. Based on our Permit Application and proposed Plan of Operations at the Bountiful Sanitary Landfill the City of obtained a permit to operate a Class I Landfill from the DEQDSHW in June of 2000.

The City currently operates the landfill in compliance with the State of Utah Department Environmental Quality, Division of Solid and Hazardous Waste, Solid Waste Permitting and Management Rules (R315-310 through 320). Continued operation of the Bountiful Sanitary Landfill as currently operating and in compliance with the Plan of Operation will accomplish the goal of ensuring environmentally sound landfill operations in the future.

## Location Standards

Because the Bountiful Sanitary Landfill is an "existing facility", the location standards for new facilities do not apply. However, Bountiful Sanitary Landfill is in general compliance with the majority of these standards even though it is not required. The areas specifically excluded from the exception for existing facilities are location standards pertaining to airports, unstable areas, and floodplains.

**Airports.** The nearest airport to the Bountiful Sanitary Landfill is the Sky Park Air Field located in Woods Cross, Utah. The North end of the runway for this small airport is located approximately 2.4 miles south of the south border of the Bountiful Sanitary Landfill. This airport services only piston type aircraft. No turbojet aircraft use this air strip. Birds attracted by landfill operations will not interfere with aircraft from this airport.

The north end of the runway at the Salt Lake International Airport is located approximately 8 miles south of the south border of the Bountiful Sanitary Landfill. This airport is used by many types of aircraft including large turbojets. Due to the distance of the runway from the landfill, interference of birds attracted by the landfill with aircraft is not anticipated.

**Unstable Areas.** Based on several Geological and Geotechnical reports performed in the area of the Bountiful Sanitary Landfill, and based on the definition of an "unstable area" in the Solid Waste Permitting and Management Rules, the Bountiful Sanitary Landfill is not in an unstable area.

The site is flat, and lack of stability of natural slopes is not a problem. Slope stability analyses were performed on slopes produced by landfilling operations. Conservative values based on laboratory soils tests, experience and engineering judgement were used for refuse and soil parameters. The values used are as follows:

Refuse:	Cohesion=0.0	Unit Weight=37.0 lb/ft <sup>3</sup>	Friction Angle=25.0
Soil:	Cohesion=50.0	Unit Weight=110.0 lb/ft <sup>3</sup>	Friction Angle=30.0

The minimum factor of safety determined by Bishop Modified Method and Ordinary Method of Slices was 2.250. The program "JSLOPE" was used to determine various factors of safety based on a search for minimum factor of safety for various failure surfaces. Some critical failure surfaces were plotted, and are shown in Appendix G. The failure surface with the minimum factor of safety is also shown in Appendix G along with input and output data from the computer program.

As discussed in the section of this application entitled "Geohydrological Assessment Report", the Bountiful Sanitary Landfill is in a seismic impact zone. However, because the landfill is an existing facility, regulations relating to seismic impact zones do not apply. Even so, in order to increase our comfort level as well as that of state regulators, we performed a pseudo-static analysis of the landfill slopes under the same conditions as those described above, but including the added force which would be applied by earthquake movement. In a pseudo-static analysis the horizontal seismic acceleration is conservatively assumed to be both unidirectional and constant in its application, like a static dead load. In fact, the seismic accelerations and resultant forces act in multiple directions with varying intensities over the period of the seismic event. Since the varying intensities of the seismic loads tend to be less than the loads resulting from the assumed peak accelerations, assuming a constant loading equivalent to the peak acceleration is a very conservative assumption. A seismic force of 0.2g was applied both at the base and at the center of each slice in the above described slope stability analysis. In both cases, all factors of safety remained above 1. Input and output data from the computer program can be found in Appendix G.

The thick saturated clay layers at the site are subject to consolidation when the soil overburden pressure is increased. Therefore as the refuse fill at the site progresses, settlement is anticipated. In an attempt to ensure proper runoff of storm water from the landfill surface, final slopes have been designed to tolerate consolidation of sub-layers, and still maintain proper slope. Also, quarterly inspections will include a check of slopes and cover to detect unacceptable amounts of settling. Any noted settlement will be immediately repaired. Any cracks developed in the cover due to settlement will also be immediately repaired.

**Floodplains.** As discussed earlier, the Bountiful Sanitary Landfill is located east of the east shore of the Great Salt Lake. In the early to mid 1980's the level of the lake rose substantially to levels which caused it to nearly surround the landfill. All sides were bordered by lake water except the southeast corner of the landfill in the area of the entrance gate. Improvements to the landfill site during this time proved effective in preventing washout of solid waste from the landfill site. The improvements at the site included building and upgrading berms and dikes around the landfill, and providing rip-rap material to prevent erosion. These dikes and berms are maintained in good condition in order to remain prepared should the level of the lake rise as it did in the early to mid 1980's.

The size of the floodplain of the Great Salt Lake is very large in relation to the size of the Bountiful Sanitary Landfill. Therefore any reduction in floodplain capacity, or restriction of flow caused by landfilling operations is insignificant.

#### **Landfill Design and Operation**

The Bountiful Sanitary Landfill has been designed by employing current and commonly accepted engineering practice. The facility is designed to provide economical disposal of the solid waste generated within the limits of Bountiful City and to provide both economical and environmentally sound landfill operation. This is accomplished by complying with the landfill specifications and design parameters, and following the approved Plan of Operation contained in this permit application.

**Cell Design.** Landfill cells have been designed to maximize available space, to provide easy access to the working face for equipment and haul vehicles, and minimize run-on to the active landfill face. Run-on and run-off control have been considered.

Fill at the Bountiful Sanitary Landfill will be performed using a modified area fill method. The modification is due to the desire to make use of any available cover material used previously in providing interim soil cover and run-off measures. In areas where more than one foot of cover material is available for recovery, a trench will be excavated to the bottom of the excess cover

material prior to placing the initial lift of refuse. The soil excavated will be stockpiled and subsequently reused for interim and final cover on the new lifts. This will occur on the first lift in each area of the landfill. The remainder of the lifts will employ standard area fill procedures.

A cell will consist of one lift ranging in thickness from ten feet thick on the east edge of the landfill and tapering on a slope of 1% or greater to meet the existing grade on the west end. This will provide drainage away from the active face, and will allow drainage toward the run-off retention pond located on the west edge of the landfill.

**General Daily Operation.** Refuse delivered to the landfill site will undergo initial screening at the gate to determine if any suspicious, or hazardous materials are present, and to determine if any portion of the load can be deposited in the recycling bins, branch chipping pile or composting areas. If nothing is noted that requires special handling procedures or further inspection, the load will be weighed, and directed to the working face of the landfill to be unloaded. All refuse will be placed at the toe of the active face of the landfill, and landfill personnel and equipment will be employed to spread the refuse in layers of approximately two to three feet thick. Each layer will be compacted by approximately 3-5 passes over the refuse with compaction equipment. Daily cover will consist of at least six inches of compacted soil or other approved alternative cover, which will be placed over the active face at the end of each working day. Detailed operating procedures are outlined in the attached "Plan of Operations", and "Landfill Specifications".

**Cover Soil.** Soil for daily and interim cover at the landfill will be imported to the site by landfill operators or other haulers. Landfill operators accept clean soil delivered to the site and placed as requested by the on-site supervisor in useable quantities at no charge to the hauler. If additional soil is needed for daily or interim cover for landfill operations, Bountiful City personnel and equipment will be used to transport and place the soil.

Interim cover will be placed at the top of each lift at least weekly. Interim cover will consist of an additional six inches of soil for a total interim cover thickness of 12 inches. This cover will

be placed on all areas which are to receive at least one additional lift of refuse prior to receiving final cover. Soil for interim cover will be from the same source as the daily cover.

Final cover soil will be obtained on site. Large quantities of low permeability clay was excavated from an area south of the landfill. Much of this soil was used as interim cover and to provide positive drainage on the south half of the landfill and can be reclaimed for use as final cover. Some of the soil was stock piled on site for use as final cover and to construct the dikes in the storm water retention pond. Initially, approximately 640,000 cubic yards were excavated for use at the landfill. Currently approximately 500,000 cubic yards are available for use as final cover, approximately 400,000 of which can be reclaimed from the interim cover on the south half of the landfill. Approximately 307,000 cubic yards will be necessary to provide final cover. The extra on-site soil will be used for daily and interim cover.

**Soil Liner.** Because the Bountiful Sanitary Landfill is an existing facility, an engineered liner at the site is not required. However, the natural low permeability soil underlying the landfill serves as a liner, and prevents the vertical migration of leachate from the landfill. The permeability of the natural clay liner which underlies the Bountiful Sanitary Landfill was determined by laboratory testing of undisturbed samples. These tests determined the in place permeability of the soil to be approximately  $10^{-8}$  cm/s.

**Leachate Collection, Treatment, and Disposal System.** Because no liner is required at the landfill, no leachate collection, treatment or disposal is currently planned at the site. Improved run-on and run-off control, combined with the relatively dry climate will minimize the potential for leachate production and migration.

**Run-on/Run-off Control System.** A run-off collection pond designed to retain the runoff from the active face of the landfill during a 24 hour 25 year storm has been designed and constructed at the landfill. Refuse fill areas and cover will be constructed and graded to drain away from the active face of the landfill. All runoff from the active face of the landfill will be collected and drained to the run-off collection pond.



The run-off collection pond is constructed of low permeability clay soil obtained on site. This soil has been compacted and tested in the laboratory. The permeability of the soil was determined to be  $1.2 \times 10^{-7}$  cm/sec. when compacted to 95% of maximum density as determined by a Standard Proctor. At least two feet of compacted soil constitutes the pond liner. All run-off water retained by the pond will be allowed to evaporate. No run-off water from the active face will be released from the landfill site.

**Closure and Post Closure Design.** The closure and post closure plans have been designed in accordance with applicable design parameters of the Division of Solid and Hazardous Waste Administrative Rules.

The intent of the closure plan design is to minimize the need for maintenance, minimize the threat to human health and the environment from post closure escape of solid waste constituents, leachate, landfill gasses, contaminated runoff or waste decomposition products to the ground, ground water, and surface water, and to prepare the facility for the post closure period.

The intent of the post closure plan design is to provide continued facility maintenance and monitoring of gasses, land, and ground water, and to provide for timely maintenance of noted deterioration or wear of any of the protective or monitoring systems.

Detailed descriptions of the closure, and post closure plans are found in the " General Report" section of this application.

Currently, nearly all of the property surrounding the landfill is owned by Bountiful City. That which is not owned by Bountiful City is zoned by Davis County as A-1 and A-5. No decision has been established relating to future use of the landfill site, but some speculation indicates recreational uses are anticipated. It is not anticipated that any change in ownership will be necessary upon completion of closure and post closure activities.

**APPENDIX A**  
**PROOF OF OWNERSHIP**

Recorded at Request of

RETURNED

E# 949279 BK 1452 PG 334  
CAROL DEAN PAGE, DAVIS CNTY RECORDER  
1991 NOV 25 3:47 PM FEE 7.00 DEP SMH  
REC'D FOR BOUNTIFUL CITY

at \_\_\_\_\_ M. Fee Paid \$

NOV 25 1991

by \_\_\_\_\_ Dep. Book \_\_\_\_\_ Page \_\_\_\_\_ Ref.: \_\_\_\_\_

Mail tax notice to HALVOR M. OLSEN Address 936 W. PAGES LANE  
WEST BOUNTIFUL, UT.

## SPECIAL WARRANTY DEED

SE 14, 2N-1W

[CORPORATE FORM]

Bountiful City, a corporation  
organized and existing under the laws of the State of Utah, with its principal office at  
Bountiful City, of County of Davis, State of Utah,  
grantor, hereby CONVEYS AND WARRANTS against all claiming by, through or under it to  
Ruby Annetta Miller Olsen Family Ltd. Partnership

of State of Utah, grantee  
for the sum of  
One Dollar (\$1.00) and other good and valuable consideration. DOLLARS  
the following described tract of land in County,  
State of Utah:

Beginning at a point which is S89°47'11"W 261.14 ft. along the quarter section line from the  
northeast corner of the southeast 1/4 of Section 14, T.2N., R.1W., SLB&M and running  
thence S89°47'11"W 316.96 ft. along said quarter section line; thence S27°55'11"W 318.01  
ft. more or less to the center line of a street and the south line of grantors property;  
thence N89°47'11"E 428.53 ft. along the centerline of said street and said south line of  
property to the West line of a street at a point 301.10 ft. West of the East line of said  
Section 14; thence N7°34'45"E 283.05 ft. more or less along the West line of said street  
to THE POINT OF BEGINNING.

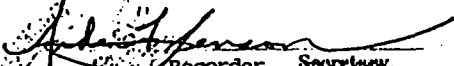
Containing 2.3997 acres.

Pr 06-027-0035

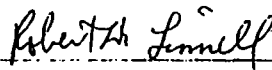
The officers who sign this deed hereby certify that this deed and the transfer represented  
thereby was duly authorized under a resolution duly adopted by the board of directors of the  
grantor at a lawful meeting duly held and attended by a quorum.

In witness whereof, the grantor has caused its corporate name and seal to be hereunto affixed  
by its duly authorized officers this 22nd day of October, A. D. 1991

Attest:

  
Recorder Secretary  
[CORPORATE SEAL]

By



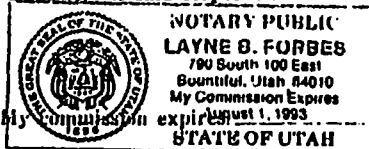
ROBERT D. LINNELL

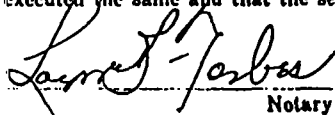
Mayor

STATE OF UTAH,

County of Davis

On the 14th day of November, A. D. 1991  
personally appeared before me Robert D. Linnell and Arden F. Jenson  
who being by me duly sworn did say, each for himself, that he, the said Robert D. Linnell  
is the Mayor ~~President~~ and he, the said Arden F. Jenson is the ~~Secretary~~ Recorder  
of Bountiful, a Municipal Corporation, and that the within and foregoing  
instrument was signed in behalf of said corporation by authority of a resolution of its Board of  
City Council.  
~~Arden F. Jenson~~ Robert D. Linnell and Arden F. Jenson  
each duly acknowledged to me that said corporation executed the same and that the seal affixed  
is the seal of said corporation.





Notary Public.

My residence is \_\_\_\_\_

NE 14-2N-1W

Recorded at Request of

Et 948105 BK 1450 PG 545  
CAROL DEAN PAGE, DAVIS CITY RECORDER  
1991 NOV 14 2142 PM FEE .00 DEP JB  
REC'D FOR BOUNTIFUL CITY

at M. Fee Paid \$

by Dep. Book Page Ref.

RETURNED

Mail tax notice to Address

NOV 14 1991

## WARRANTY DEED

(Special)

Ruby Annetta Miller Olsen Family Ltd. Partnership

grantor

of

hereby

CONVEY AND WARRANT against all claiming by, through or under

to

The city of Bountiful

grantee

of State of Utah

for the sum of

One Dollar (\$1.00)

DOLLARS,

and other good and valuable consideration.

the following described tract of land in Davis

County,

State of Utah:

Beginning on the westerly line of the E 1/2, NE 1/4, of Section 14, at a point S89°47'11"W 1317.97 ft. along the 1/4 section line and N0°34'39"W 6.83 ft. along said westerly line from the East 1/4 corner of said Section 14, T.2N., R.1W., SLB&M and running thence N0°34'39"W 444.33 ft. along said westerly line which is the westerly line of the grantors land; thence N89°04'49"E 399.98 ft. along the northerly property fence line of said grantors land to the point of contact with a 430.00 ft. radius curve to the left. (Note: Bearing of radius at said point of contact is S52°45'21"E); thence southwesterly 0.38 ft. along the arc of said curve through a central angle of 0°02'25"; thence S37°12'14"W 402.64 ft. to the point of tangency with a 470.00 ft. radius curve to the right; thence southwesterly 201.26 ft. along the arc of said 470.00 ft. radius curve through a central angle of 24°32'06" to THE POINT OF BEGINNING.

pt 06-026-0016

Containing 2.2691 Acres.

WITNESS, the hand of said grantor, this 21<sup>ST</sup>  
OCTOBER, A. D. 1991

day of

Signed in the Presence of

*James P. Buehler*

*Halvor M. Olsen*  
General Partner

STATE OF UTAH,

County of Davis

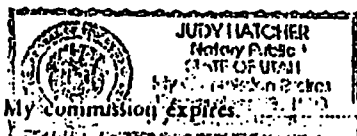
ss.

Accepted For Bountiful City By:  
*James P. Buehler* City Engineer

On the 21st day of October  
personally appeared before me Halvor M. Olsen

, A. D. 19 91

the signer of the within instrument, who duly acknowledged to me that he executed the same.



*Judy Hatcher*  
Notary Public.  
Residing in Bountiful, Utah

6-39

552

99782

8874-14-27-100

Recorded at Request of NOV 10 1947

at 2:00 P. M. Fee Paid \$ 2.00 fee

Platted ☒ Abstracted ☒C. A. Margin ☐ Indexed ☒by After Hatch Dep. Book 2-E-11 Page 552 Ref. DeedsCompared ☐ Entered ☒

Mail tax notice to \_\_\_\_\_ Address \_\_\_\_\_

## WARRANTY DEED

IRA WAITE, a widower, grantor  
 of Bountiful, County of Davis, State of Utah, hereby  
 CONVEY and WARRANT to BOUNTIFUL CITY, a Municipal Corporation of the State  
 of Utah,

grantee  
 of Bountiful, County of Davis, State of Utah  
 for the sum of TEN and No/100 - - - - - DOLLARS,  
 and other good and valuable consideration,

the following described tract of land in Davis County,  
 State of Utah, to-wit:

Beginning at a point 261.14 feet West of the Northeast corner of the Southeast  
 quarter of Section 14, Township 2 North, Range 1 West, Salt Lake Meridian, and  
 running thence West 1058.86 feet; thence South 59° East 8.25 chains, more or less,  
 to the center of a street; thence East along the center of said street 552.28 feet,  
 more or less, to the West line of a street at a point 301.1 feet West of the East  
 line of said Section 14; thence Northeasterly along the West line of said street  
 to the point of beginning.



WITNESS the hand of said grantor, this 31<sup>st</sup> day of October, A. D. 19 47

Signed in the presence of

Jed R. Stringham

Ira Waite

STATE OF UTAH,

County of DAVIS

ss.

On the 31<sup>st</sup> day of October, A. D. 1947 personally  
 appeared before me IRA WAITE, a widower,

the signer of the within instrument who duly acknowledged  
 to me that he executed the same.



RECORDED  
 MAY 1948

J. R. Sessions  
 Notary Public.

My commission expires April 17, 1948 My residence is Bountiful, Utah

THIS DEED PRINTED ESPECIALLY FOR PHOTO-RECORDING. USE BLACK INK AND TYPE.

BLANK NO. 101-KELLY CO., 25 WEST 1ST SOUTH, SALT LAKE CITY, UTAH

3-37

HAROLD P. FABIAN  
BEVERLY S. CLENDENIN  
O. HOWE MOFFAT  
NDELL N. MABEY  
ER W BILLINGS

FABIAN, CLENDENIN, MOFFAT & MABEY  
ATTORNEYS AND COUNSELORS AT LAW  
CONTINENTAL BANK BUILDING  
SALT LAKE CITY 1, UTAH  
September 6, 1947.

Bountiful City Council  
Bountiful, Utah

TITLE OPINION

Real estate situated in Davis County, Utah,  
to-wit:

Beginning at a point 261.14 feet West of the  
Northeast corner of the Southeast quarter of  
Section 14, Township 2 North, Range 1 West,  
Salt Lake Meridian, and running thence West  
1058.86 feet; thence South 59° East 8.25  
chains, more or less, to the center of a  
street; thence East along the center of  
said street 552.28 feet, more or less, to  
the West line of a street at a point 301.1  
feet West of the East line of said Section 14;  
thence Northeasterly along the West line of  
said street to the point of beginning.

Abstract of Title D15282

Prepared by Security Title Compa-  
ny.

This abstract begins with a United States Patent to  
John A. Waite, which was recorded in Book "K" of Deeds at  
Page 622, and consists of 9 pages numbered 1 to 9, both inclu-  
sive, certified to the 27th day of August, 1947, at 8:55  
o'clock a.m. by Security Title Company, together with a plat  
showing the location of the property under search.

OPINION

From an examination of the hereinbefore described ab-  
stract, we are of the opinion that as of the time and date of  
the last certificate therein, to-wit: the 27th day of August,  
1947, at 8:55 o'clock a.m., the fee simple title to the herein-  
before described real estate was vested in Ira Waite as shown  
by warranty deed at Page 3, subject to the following:

1. Right-of-way to Telluride Power Company as shown  
at Page 2.

RECORDED

DAY

1978

Page Two  
Bountiful  
9-6-47

2. Right-of-way to Telluride Power Company as shown at Page 4.

3. Right-of-way and easement to Utah Power Company as shown at Page 5.

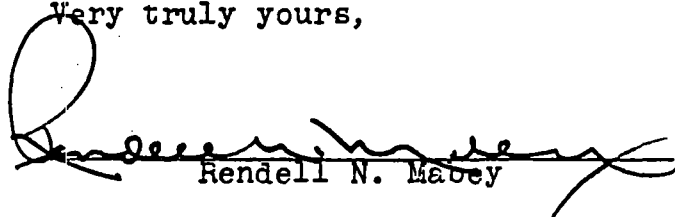
4. Right-of-way to Utah Oil Refining Company as shown at Page 9.

5. Taxes for 1947 are a lien but not yet due.

Attention is called to the fact that the abstract does not show the rights, if any, of parties in possession; the rights, if any, of laborers or material men to file mechanics' liens, the statutory time for filing which liens had not expired at the time of the last certificate of the abstract; nor taxes on personal property, if any, not listed with property on the assessment rolls.

Herewith we return the above described abstract.

Very truly yours,

  
Rendell N. Mabey

RNM/ler  
Enc.

MICROFILMED  
MAY 1978

S U P P L E M E N T A L  
**Abstract of Title**

TO PROPERTY DESCRIBED ON THE CERTIFICATE PAGE OF THIS ABSTRACT

PREPARED BY  
**SECURITY TITLE COMPANY**  
~~SECURITY TITLE COMPANY~~  
**FARMINGTON, UTAH**  
**SALT LAKE CITY 1, UTAH**  
**PHONE 3-5841**

MEMBER AMERICAN TITLE ASSOCIATION

MICROFILMED

MAY 1978



IRA WAITE,  
a widower,

-to-

BOUNTIFUL CITY, a  
Municipal Corporation of  
the State of Utah.

KIND OF INSTRUMENT **WARRANTY DEED**  
DATED \_\_\_\_\_ October 31, 1947  
ACKNOWLEDGED \_\_\_\_\_ October 31, 1947  
BEFORE \_\_\_\_\_ Leland H Sessions, N.P.  
Bountiful, Utah (Seal)  
Com. Expires April 17, 1948.  
By Ira Waite, a widower.  
\$1.10 I. R. Stamps Affixed.

RECORDED November 10, 1947  
BOOK "2-E" PAGE 552 OF Deeds.  
CONSIDERATION \$10.00 and other good and  
valuable considerations.

**WORDS OF GRANT:**

CONVEY AND WARRANT the following described tract of land in Davis County, State of Utah, to-wit:

Beginning at a point 261.14 feet West of the Northeast corner of the Southeast quarter of Section 14, Township 2 North, Range 1 West, Salt Lake Meridian, and running thence West 1058.86 feet; thence South 59° East 8.25 chains, more or less to the center of a street; thence East along the center of said street 552.28 feet, more or less, to the West line of a street at a point 301.1 feet West of the East line of said Section 14; thence Northeasterly along the West line of said street to the point of beginning.

SIGNATURES : Ira Waite.

PAGE NO. 10

SECURITY TITLE COMPANY

MAY 1978

To the Honorable Board of  
County Commissioners of  
Davis County, State of Utah:

PETITION FOR INCORPORATION OF  
THE TOWN OF WEST BOUNTIFUL

Dated August 18, 1948  
Affidavit of Robert W. Telford  
and Hewell P. Parkin, appended.  
Sub. & Sworn to November 27, 1948  
Before Keith L. Stahle, N.P.  
Bountiful, Utah (Seal)  
Com. Expires May 15, 1951  
Recorded December 31, 1948  
Entry #105065.

The undersigned electors, constituting a majority of the electors within the territory described below, containing a population of more than one hundred and less than seven thousand inhabitants, desiring to incorporate a town government and a body corporate and politic under the provisions of Section 15-2-6, Utah Code Annotated, 1943, hereby petition your Honorable Body to incorporate the territory of Davis County, Utah, herein described, and as shown by an accurate Plat marked Exhibit "A" attached hereto and made a part hereof, setting forth the exterior boundaries of said territory, into a Town Government and a body corporate and politic according to law.

That the area to be embraced within said Town is particularly described as follows:

Commencing at the intersection of the West line of U. S. Highway No. 91 (New Highway) and the Center line of Fifth South Street, at a point approximately 2.5 chains West and 8.18 chains South from the Northeast Corner of Section 25, Township 2 North, Range 1 West, Salt Lake Meridian, United States Survey, and running thence Westerly along said Center line of Fifth South Street, 36.00 chains, more or less, to the East line of the right of way of the O. S. L. RR Co; thence South  $19^{\circ}50'$  West along said East line of right of way, 354 feet, more or less, to a point 300 feet South of the South line of said Fifth South Street; thence Westorly parallel with said South line of Fifth South Street and 300 feet distant South therefrom 49.4 chains, more or less, to a point in the Northeast Quarter of Section 26, Township 2 North, Range 1 West, Salt Lake Meridian, 775 feet West of the West line of Section 25, Township 2 North, Range 1 West; thence Northerly parallel with said West line of Sections 25, 24 & 13 and 775 ft. distant west therefrom, 133.645 chains, more or less, to the North line of the Southeast Quarter of Section 14, Township and Range aforesaid; and running thence East along said Quarter Section line of Section 14, and the Quarter Section lines of Section 13, Township and Range aforesaid, 90.8 chains, more or less, to the West line of said U. S. Highway No. 91; thence Southerly along said West line of U. S. Highway No. 91, 84.275 chains, more or less, to the North line of land of Harvey Thomas and Victoria Thomas; thence West along said North line of land, 384.21 feet; thence South 15 rods; thence East 384.21 feet to said West line of U. S. Highway No. 91; thence South along said West line of Highway, 399.85 feet, more or less, to the North line of land of Walter V. Nelson and Amy S. Nelson; thence West along said North line of land, 252 feet; thence South 110 feet; thence West 40.05 feet; thence South 1110.5 feet, more or less, to the North

(Continued)

PAGE NO. 11

SECURITY TITLE COMPANY

MICROFILMED

MAY

1978

Continuation of PETITION, Entry #105065.

line of land of David L. Holbrook; thence East along said North line of land, 17.7 rods to said West line of Highway; thence South along said West line of Highway, 9 rods 14 feet and 10 inches to land of George W. Walker and Martha S. Walker; thence West along said North line of land, 17.7 rods; thence South 19 rods 12.5 feet 8 inches, more or less, to the South line of the Southeast Quarter of Section 24, Township and Range aforesaid; thence East 17.7 rods to said West line of Highway; thence South 8.18 chains, more or less, to the point of commencement.

That the name of said incorporated territory be Town of West Bountiful; and that a President and Board of Four Trustees of said Town be appointed to hold office until the next municipal election and until their successors are elected and qualified.

SIGNED: Lane C Mann  
Jared Brown  
Orla P. Hillhouse  
and 210 other names.

RESOLUTION APPROVING THE PETITION FOR INCORPORATION OF THE TOWN OF WEST BOUNTIFUL AND APPOINTING OFFICERS THEREFOR.

WHEREAS, a petition has been presented to this Board for the incorporation of the Town of West Bountiful, which petition has been subscribed by a majority of the electors residing within the area described, and

WHEREAS, it appears from said petition, duly verified, that there are residing within the unincorporated territory therein described, a population of not less than 100 but less than 7000, and

WHEREAS, the County Attorney of Davis County has approved the form and sufficiency of said petition, and it appears that said petition and the accompanying plat showing the boundaries of said proposed town are in good order and conform to the Statutes of the State of Utah,

NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF DAVIS COUNTY, STATE OF UTAH, IN REGULAR SESSION ASSEMBLED:

1. That the petition for the incorporation of said Town of West Bountiful, hereinabove referred to, be and the same is hereby approved.

(Continued)

PAGE NO. 12

SECURITY TITLE COMPANY

Continuation of PETITION, Entry #105065.

2. That upon the filing of a copy of said petition together with a copy of the plat attached thereto with the County Recorder of Davis County, Utah, said Town shall constitute a body corporate and politic under the name and style of "Town of West Bountiful".

3. That the following named electors, residents of said Town of West Bountiful, be and they are hereby appointed to the respective positions set opposite their names, to hold office until the next municipal election and until their successors are elected and qualified:

Newell P. Parkin, President of Board of Trustees of Town of West Bountiful;

Robert W. Telford, Member of Board of Trustees of Town of West Bountiful;

Leland R. Smith, Member of Board of Trustees of Town of West Bountiful;

George B. Mann, Member of Board of Trustees of Town of West Bountiful;

Jared Brown, Member of Board of Trustees of Town of West Bountiful;

Adopted by the Board of County Commissioners of Davis County, Utah, and approved by the Chairman thereof this 27th day of December, 1948.

SIGNED: Eugene C. Ford  
Chairman Board of County Commissioners.  
ATTEST: Hyrum C Brough, County Clerk  
(Seal)

PAGE NO. 13

SECURITY TITLE COMPANY

RECORDED

MAY

1978

# CERTIFICATE

STATE OF UTAH.  
COUNTY OF DAVIS

} ss.

SECURITY TITLE COMPANY, a corporation organized and existing under the laws of the State of Utah, hereby CERTIFIES that the foregoing abstract consisting of pages numbered from 10 to 13, - both inclusive, is a true and correct abstract of the following:

1. All Instruments (including Federal Tax Liens) filed or recorded in the Office of the County Recorder of said County and State, SINCE the 27th day of August, A. D. 1947 at 8:55 A. M. that refer to or in any manner affect the title to the following described land situate in said County. and State, to-wit:

Beginning at a point 261.14 feet West of the Northeast corner of the Southeast quarter of Section 14, Township 2 North, Range 1 West, Salt Lake Meridian, and running thence West 1058.86 feet; thence South 59° East 8.25 chains, more or less, to the center of a street; thence East along the center of said street 552.28 feet, more or less, to the West line of a street at a point 301.1 feet West of the East line of said Section 14; thence Northeast-erly along the West line of said street to the point of beginning.

2. All subsisting JUDGMENTS and all TAX LIENS appearing upon the Dockets of the District Court for said County and State and ALL PETITIONS FOR DEBTOR'S RELIEF not now discharged and appearing of record in the Office of the Clerk of the United States District Court for the District of Utah, indexed under the names of Ira Waite, since the date above written, to and including November 10, 1947, or Bountiful City, within eight years last past.

3. ALL TAX SALES and DELINQUENT TAXES against said land appearing upon the records of the Treasurer of said County and State, since the date first above written.

Taxes for 1949 are now a lien but not yet due.

4. (This Certificate does not include taxes on Personal Property not listed with said land on the Assessment Rolls.)

5. This Certificate does not include an examination of or a report upon special assessment levied for local improvements by any town or city.

6. And the above land is not located within any incorporated City, Irrigation District or other Governmental body which has the power to levy taxes or assessments, EXCEPT as herein shown.

7. This Certificate does not cover crop or chattel mortgages.

IN WITNESS WHEREOF, the said Company has caused this Certificate to be signed by its duly authorized officer, and its Seal affixed this 9th day of September, A. D. 1949 at 8:55 A. M.

SECURITY TITLE COMPANY.

By 

Registered Abstractor.

SECURITY TITLE COMPANY

MICROFILMED

MAY 1978

HAROLD R. FABIAN  
SEVERLY S. CLENDENIN  
D. HOWE MOFFAT  
RENDELL N. MABEY  
PETER W. BILLINGS  
MAX B. LEWIS

FABIAN, CLENDENIN, MOFFAT & MABEY  
ATTORNEYS AND COUNSELORS AT LAW  
CONTINENTAL BANK BUILDING  
SALT LAKE CITY 1, UTAH

September 27, 1949

Bountiful City Council  
Bountiful, Utah

SUPPLEMENTAL TITLE OPINION

Real estate situated in Davis County, Utah, to-wit:

Beginning at a point 261.14 feet West of the North-east corner of the Southeast quarter of Section 14, Township 2 North, Range 1 West, Salt Lake Meridian, and running thence West 1050.36 feet; thence South 59 deg. East 8.25 chains, more or less, to the center of a street; thence East along the center of said street 552.23 feet, more or less, to the West line of a street at a point 501.1 feet West of the East line of said Section 14; thence Northeasterly along the West line of said street to the point of beginning.

Abstract of Title  
#515282

Prepared by Security Title Company

Since rendering our title opinion of September 8, 1947 based on an abstract consisting of 9 pages and certified to the 27th day of August, 1947 at 8:55 o'clock A. M. by Security Title Company, together with a plat showing the location of the property under search, you have placed in our hands a supplemental abstract consisting of pages 10, 11, 12 and 13 and certified to the 9th day of September, 1949 at 8:55 o'clock A. M. upon which this opinion is now based.

OPINION

From an examination of the hereinbefore described abstract, we are of the opinion that as of the time and date of the last certificate therein, to-wit: the 9th day of September, 1949 at 8:55 o'clock A. M., the fee simple title to the hereinbefore described real estate was vested in Bountiful City, a municipal corporation of the State of Utah, as appears at Page 10 of said supplemental abstract, subject to the following:

1. Right-of-way to Telluride Power Company as shown at Page 2.
2. Right-of-way to Telluride Power Company as shown at Page 4.
3. Right-of-way and easement to Utah Power Company as shown at Page 5.

RECORDED

MAY

September 27, 1949

4. Right-of-way to Utah Oil Refining Company as shown at Page 9.

5. The property under search according to Pages 11, 12 and 13 is now situated within the incorporated town of West Bountiful, Utah.

6. 1949 taxes are a lien but not yet due.

Attention is called to the fact that the abstract does not show the rights, if any, of parties in possession; the rights, if any, of laborers or material men to file mechanics' liens, the statutory time for filing which liens had not expired at the time of the last certificate of the abstract; nor taxes on personal property, if any, not listed with property on the assessment rolls.

Herewith we return the abstract above referred to.

Very truly yours,



Rendell H. Mabey

RHM:mn  
Enc.

RECEIVED

MAY

1949

Ira Waite and  
Stella Waite, his wife,

-to-

Utah Power Company,  
a Maine Corporation.

# RIGHT OF WAY EASEMENT

Dated June 20, 1913

ack'd July 15, 1913

Before Hophi Palmer, N.P.

Davis County, Utah (Seal)

Com. Expires Aug. 20, 1913

By Ira Waite and

Stella Waite, his wife,

Recorded August 9, 1913

Book "D" Page 536 of L. & L.

Cons. \$1.00 and other valuable  
considerations.

SELL AND CONVEY an easement and right of way, and the right, privilege and authority to construct, erect, operate and maintain, a line or lines for the purpose of transmitting electric or other power, and telegraph and telephone lines, in, upon, along, over, through across and under a piece of land 150 feet in width, situated in the County of Davis and State of Utah, and more particularly described as follows, to wit:

Beginning at a point 656 feet west of the  $\frac{1}{4}$  Sec. corner between Secs. 13 and 14, T. 2 N., R. 1 W., S. 1 E., & M., and running thence west a distance of 170 feet, more or less, thence S. 28° 58' W., a distance of 347 feet, more or less; thence east a distance of 170 feet more or less; thence E. 28° 58' E., a distance of 347 feet, more or less to the place of beginning; all in the  $\frac{1}{4}$  Sec. 14, T. 2 N., R. 1 W., S. 1 E., & M.

Together with the rights to place, erect, relocate, inspect and operate thereon, poles, towers, crossarms, and fixtures, and to place and maintain such other appurtenances useful or necessary to operate said line or lines, and string wires and cables from time to time, across, through, under or over, the above described premises; (however, as to the number of towers and poles to be placed upon said land hereunder, it is understood and agreed that only one tower shall be placed upon said land under this easement for the above considerations; but if at any time the grantee shall desire to erect and maintain additional towers or poles upon said land it may do so under this easement by paying to the then owner of said land the further sum of \$10.00 for each tower so placed and maintained and the further sum of \$5.00 for each pole so placed and maintained); also the right and privilege to cut and remove from said premises, and on either side thereof, any timber, trees or overhanging branches, or other obstruction, which do or may endanger the safety, or interfere with the use of said poles or towers or fixtures or wires thereto attached, and the right of ingress and egress, to and over the above described premises for the purpose of repairing, renewing and inspecting said poles, towers, fixtures, wires and appurtenances, and for doing anything necessary, useful or convenient for the enjoyment of the easement herein granted; also the privilege or removing at any time any or all of said improvements upon, over, under or on said lands.

SIGNED: Ira Waite  
Stella Waite,

RECORDED

MAY

1913

5



John A. Waite, a widower,

RIGHT OF WAY EASEMENT

-to-

UTAH POWER COMPANY, a  
Maine Corporation.

Dated June 20, 1913  
Recorded August 9, 1913  
Book "D" Page 570 of L.L.  
Cons. \$1.00 and other  
valuable consideration.

HEREBY GRANTS, bargains, sells and conveys to said Utah Power Company, its successors and assigns, an easement and right of way and the right, privilege and authority to construct, erect, operate and maintain a line or lines, for the purpose of transmitting electric or other power and telegraph and telephone lines, in, upon, along, over, through, across and under a piece of land 150 feet in width, situated in the County of Davis, and State of Utah, and more particularly described as follows, to-wit:

Beginning at a point 658 feet West and S. 28 deg. 8 Min. W. a distance of 347 feet from the 1/4 Sec. corner between Secs. 13 and 14, T.2N., R.1W., S.1.2. & M. and running thence S 28 deg. 8 Min. W. a distance of 838 feet, more or less, thence West a distance of 85 feet, more or less, thence North a distance of 160 feet, more or less, thence N 28 deg. 8 min. E. a distance of 710 feet, more or less, thence East a distance of 170 feet to the place of beginning, all in the NE 1/4 of SE 1/4 Sec. 14, T.2N., R.1W., S.1.2. & M.

Together with the rights to grantee, its successors and assigns, to place, erect, relocate, inspect and operate thereon, poles, towers, cross-arms and fixtures and to place and maintain such other appurtenances useful or necessary to operate said line or lines, and string wires and cables from time to time across, through under or over the above described premises.

SIGNED: John A. Waite

Ack'd June 30, 1913, before Nephth Palmer, N.P., State of Utah  
(Seal) Cons. Expires Aug. 20, 1913, by John A. Waite.

*Also pages 2, 4, 5 & 9 of attached abstract*

MICROFILMED  
MAY 1978

Ira Waite and Stella  
Waite, his wife,

-to-

Utah Power & Light Company,  
a corporation.

TRANSMISSION LINE EASEMENT

Dated February 13, 1917

Recorded June 13, 1917

Book "F" Page 48 of O.R.

Entry No. 25694

Cons. \$1.00 and other  
valuable consideration.

CONVEY AND WARRANT a perpetual easement and right of way for the erection and continued maintenance, repair, alteration, inspection, re-location and replacement of the electric transmission distribution, telephone and telegraph circuits of the Grantee, and no poles or towers, with the necessary guys, stubs, cross-arms and other attachments thereon, or affixed thereto, for the support of said circuits, under, upon and across a tract of land fifty (50) feet in width, belonging to the Grantors, in Davis County, Utah, described as follows: Twenty-five (25) feet on each side of a line:

Commencing on the South boundary of Grantor's land 732 feet West of a point 325 feet South of the East  $\frac{1}{4}$  corner Sec. 14, Tp. 2 N., R. 1 E., S. 4 N. - thence running N. 23.08° East 360 feet to North boundary of Grantor's land; all contained within the N.E.  $\frac{1}{4}$  of S.E.  $\frac{1}{4}$ , Sec. 14, said Township and Range.

Together with all rights of ingress and egress necessary or convenient for the full and complete use, occupation and enjoyment of the easement hereby granted, and all rights and privileges incident thereto, including the right to cut and remove timber, trees, brush, overhanging branches and other obstructions which may injure or interfere with the Grantee's use, occupation or enjoyment of this easement.

SIGNED: Ira Waite

SIGNED: Stella Waite

Ack'd February 13, 1917, before R.C. Willey, N.P., State of Utah  
(Seal) Com. Expires Feb. 4, 1921, by Ira Waite and Stella Waite,  
his wife.

RECORDED

MAY 1917

John A. Waite, a  
widower,

-to-

UTAH POWER & LIGHT COMPANY,  
a corporation.

TRANSMISSION LINE EASEMENT

Dated February 7, 1917  
Recorded June 13, 1917  
Book "P" Page 48 of L. & L.  
Entry No. 25693  
Cons. \$1100 and other  
valuable consideration.

CONVEYS AND WARRANTS a perpetual easement and right of way for the erection and continued maintenance, repair, alteration, inspection, re-location, and replacement of the electric transmission, distribution, telephone and telegraph circuits of the Grantee, and two towers, with the necessary guys, stubs, cross-arms and other attachments thereon, or affixed thereto, for the support of said circuits, under, upon and across a tract of land fifty (50) feet in width, belonging to the Grantor, in Davis County, Utah, described as follows:

Twenty-five (25) feet on each side of a line:

Commencing on the South boundary of Grantor's land 1160 feet West of a point 1530 feet North of the S.E. Corner Sec. 14, Tp. 2N., R. 1W., S.1.M., thence running N. 28°08' East 900 feet to North boundary of Grantor's land; all contained within the N.E.  $\frac{1}{4}$  of S.E.  $\frac{1}{4}$  Sec. 14, said Township and Range.

Together with all rights of ingress and egress necessary or convenient for the full and complete use, occupation and enjoyment of the easement hereby granted, and all rights and privileges incident thereto, including the right to cut and remove timber, trees, brush, overhanging branches and other obstructions which may injure or interfere with the Grantee's use, occupation or enjoyment of this easement.

SIGNED: John A. Waite

(CONTINUED)

1917

1978

Recorded at request of Bountiful City Fee Paid \$ the fee  
 Date JUL 15 1971 at 1:30 p M MARGUERITE S. BOURNE Recorder Davis County  
 BY Grace Hansen Deputy Book 463 Page 490

353635

## WARRANTY DEED

JW 14-24-120

DAVIS COUNTY, a body corporate and politic, a corporation organized and existing under the laws of the State of Utah, with its principal office at Farmington, County of Davis, State of Utah, grantor, hereby conveys and warrants to BOUNTIFUL, a Municipal Corporation, of the County of Davis, State of Utah, Grantee, for the sum of TEN DOLLARS and other considerations, the following described tract of land in Davis County, State of Utah:

Beginning at a point 3.0 rods South of the Northwest corner of the Southwest Quarter of Section 14, Township 2 North, Range 1 West, Salt Lake Meridian, and running thence East 158.0 rods; thence North 3.0 rods; thence East 2.0 rods to the center of said Section 14; thence South 88.75 rods; thence West 160 rods to the West line of said Section; thence North 85.75 rods to the point of beginning.

The officers who sign this deed hereby certify that this deed and the transfer represented thereby was duly authorized under a resolution duly adopted by the board of County Commissioners of the grantor at a lawful meeting duly held and attended by a quorum.

IN WITNESS WHEREOF, the grantor has caused its corporate name and seal to be hereunto affixed by its duly authorized officers this 13<sup>th</sup> day of July 1971.

DAVIS COUNTY

Attest:

Rodney W. Walker  
 Clerk Auditor

By Glen W. Flint  
 Chairman

STATE OF UTAH

COUNTY OF DAVIS

ss

On the 13<sup>th</sup> day of July, 1971, personally appeared before me Glen W. Flint and Rodney W. Walker, who being by me duly sworn did say, each for himself, that he, the said Glen W. Flint is Chairman, and he, the said Rodney W. Walker, is the Clerk Auditor of Davis County, and that the within and foregoing instrument was signed in behalf of said corporation by authority of a resolution of its board of County Commissioners, and said Glen W. Flint and Rodney W. Walker each duly acknowledged to me that said corporation executed the same and that the seal affixed is the seal of said corporation.

Evelyn A. Fisher  
 Notary Public

Residing at: Bountiful

My commission expires:

July 6, 1973

☐ Abstracted  
☐ Indexed  
☒ Entered  
☐ Platted  
☐ Compared

Recorded at Request of NOV 22 1949 County Utah  
 at 9<sup>30</sup> P. M. Fee Paid \$ no fee Grace C. Stevenson Recorded Deeds County  
 by Margaret A. Brown Dep. Book 8 RR Page 159 Ref.:  
 Mail tax notice to \_\_\_\_\_ Address \_\_\_\_\_  
 Indexed ☒ Abstracted ☒  
 Compared ☒ Entered ☒

# WARRANTY DEED

Streep W. Wood and Lillian Wood, his wife, grantors  
 of Bountiful, County of Davis, State of Utah, hereby  
 CONVEY and WARRANT to

BOUNTIFUL, a municipal corporation  
 of the State of Utah.

for the sum of  
 Ten Dollars and other good and valuable consideration, TEN DOLLARS  
 receipt of which is hereby acknowledged,  
 the following described tract of land in Davis County,  
 State of Utah:

Lots 1, 2, and 3, and the West half of  
 the NE 1/4 of Section 14, Township 2 North,  
 Range 1 West, Salt Lake Meridian, con-  
 taining 149.48 acres, more or less.

Together with all water rights appurtenant  
 thereto.



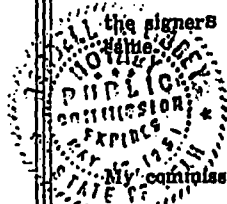
WITNESS, the hands of said grantors, this 19<sup>th</sup> day of  
 November, A. D. 19 49

Signed in the Presence of  
Margaret A. Brown } Streep W. Wood  
Lillian Wood

STATE OF UTAH,  
 County of Davis } ss.

On the 19<sup>th</sup> day of November, A. D. 19 49  
 personally appeared before me Streep W. Wood and Lillian Wood, his wife,

the signers of the within instrument, who duly acknowledged to me that they executed the



Margaret A. Brown  
 Notary Public.  
 My commission expires May 18, 1951. Residing in Salt Lake City, Utah

Recorded at Request of

ET 948104 BK 1450 PG 544  
CAROL DEAN PAGE, DAVIS CNTY RECORDER  
1991 NOV 14 2:41 PM FEE .00 DEP JB  
REC'D FOR BOUNTIFUL CITY

at M. Fee Paid \$

by Dep. Book Page Ref.:

RETURNED

Mail tax notice to

Address

NOV-14 1991

NE 14-2N-1W

# WARRANTY DEED

(Special)

Halvor M. Olsen

grantor

of

hereby

CONVEY AND WARRANT against all claiming by, through or under

to The City of Bountiful

grantee

of State of Utah

for the sum of

One Dollar (\$1.00)

DOLLARS,

and other good and valuable consideration.

the following described tract of land in Davis

County,

State of Utah:

Beginning on the westerly line of the E 1/2, NE 1/4, of Section 14, at a point S89°47'11"W 1317.97 ft. along the 1/4 section line and N0°34'39"W 451.16 ft. along said West line from the East 1/4 corner of said Section 14, T.2N., R.1W., SLB&M and running thence N76°17'42"E 580.80 ft. along the southerly fence line of a Davis County Canal to a point of contact with a 430.00 ft. radius curve to the left (Note: Bearing of radius at said point of contact is S24°27'33"E); thence southwesterly 212.36 ft. along the arc of said curve through a central angle of 28°17'48"; thence S89°04'49"W 399.98 ft. along the southerly property fence line of the grantors land to THE POINT OF BEGINNING.

Containing 0.5479 Acres

pt 06-026-0015

WITNESS, the hand of said grantor, this  
OCTOBER, A. D. 19 91

21<sup>st</sup>

day of

Signed in the Presence of

*Carol Dean Page*

*Halvor M. Olsen*

STATE OF UTAH,

County of Davis

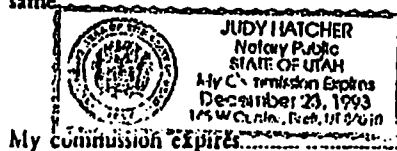
ss.

Accepted For Bountiful City By:  
*Carol Dean Page* City Engineer

On the 21<sup>st</sup> day of October  
personally appeared before me Halvor M. Olsen

, A. D. 19 91

the signer of the within instrument, who duly acknowledged to me that he executed the same



My commission expires

*Judy Hatcher*  
Notary Public  
Residing in Bountiful, Utah

1135928 B 1790 P 5  
CAROL DEAN PAGE, DAVIS CNTY RECORDER  
1994 AUG 11 8:11 AM FEE .00 DEP CDF  
REC'D FOR BOUNTIFUL CITY

SPECIAL WARRANTY DEED

nw 13  
SW 12-  
SE 11- 2N-1W

DAVIS COUNTY, a body politic of the State of Utah, with its principal office located at 28 East State Street, Farmington Utah 84025, GRANTOR, hereby conveys and warrants against all claims by, through or under it, to BOUNTIFUL CITY, a municipal corporation of the State of Utah, with its principal office at 790 South 100 East, Bountiful, Utah 84010, GRANTEE, for the sum of Ten Dollars (\$10.00) and other good and valuable consideration the following described tract of land located in Davis County, State of Utah:

06-004-0003  
06-011-0013  
x 0054  
06-007-0016  
0017-0018  
also 001518

All of Lot 2, Section 11, Township 2 North, Range 1 West, Salt Lake Meridian. ALSO: Beginning 243.0 feet West of the Southeast corner of Section 11, Township 2 North, Range 1 West, Salt Lake Meridian, and running thence West 1077.0 feet, more or less, to the Southeast corner of Lot 2, said Section 11; thence North 1320 feet along the East line of said Lot 2, to the Northwest corner of the Southeast Quarter of the Southeast Quarter of said Section 11; thence East 1815.0 feet to a point 495.0 feet East of the Northwest corner of the South one-half of the Southwest Quarter of Section 12, said Township and Range; thence South 1800 feet, more or less, to the North line of a street; thence West 395.0 feet along said street to a point 100.0 feet East of the West line of Section 13, said Township and Range; thence North 1115.0 feet, more or less, to a point 635.0 feet North and 100.00 feet East of the Southwest corner of Section 12; thence West 343.0 feet; thence South 635.0 feet to the point of beginning.

LESS A PART OF THE FOLLOWING DESCRIBED PROPERTY CONVEYED TO UTAH POWER AND LIGHT COMPANY RECORDED FEBRUARY 21, 1985, IN BOOK 1023 AT PAGE 1085 AS ENTRY NO. 0695126 WHICH AFFECTS THE PROPERTY DESCRIBED ABOVE: Beginning at an existing fence line and the North line of Section 13, Township 2 North, Range 1 West, Salt Lake Base and Meridian, at a point South 89°39'32" East along the section line 461.04 feet from the Davis County monument marking the Northwest corner of said Section 13, Davis County, Utah, and running thence North 27°22'25" East 32.61 feet along said fence to a North-South fence, thence North 0°49'35" West 511.92 feet along said fence to an existing fence corner, thence South 89°53'04" East 455.35 feet along said fence, thence South 27°45'01" West 461.10 feet; thence South 28°28'28" West 416.27 feet, thence South 0°31'13" East 247.50 feet to the North fence of Porter Lane, thence North 88°46'02" West 30.01 feet to an existing fence corner, thence North 89°24'34" West 269.63 feet along the North fence line of Porter Lane, thence North 27°22'25" East 538.42 feet to the point of beginning.


Subject to restrictions, reservations, and easements existing and of record, if any.

Witness the hand of said Grantor this 30<sup>th</sup> day of July, 1994.

DAVIS COUNTY

  
Gayle A. Stevenson, Chairman  
Board of County Commissioners

ATTEST:

  
Margene Tsom  
Davis County Clerk/Auditor



STATE OF UTAH )  
 ) ss.  
COUNTY OF DAVIS )

E 1135928 8 1790 P

7

The foregoing Special Warranty Deed was acknowledged before me this 20th day of July, 1994, by Gayle A. Stevenson and Margene Isom who duly represented to me that they are the Chairman of the Board of County Commissioners of Davis County and the Davis County Clerk/Auditor, respectively, and that they each signed the above and foregoing instrument in their official capacity and on behalf of Davis County pursuant to official action taken by the Board of County Commissioners of Davis County.

NOTARY PUBLIC

Residing at:

Farmington, Utah

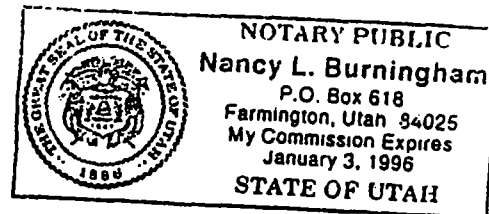
Approved as to Form:

Nancy L. Burningham

My Commission Expires:

1-3-96

Donald E. Homan  
Office of Davis County  
Attorney



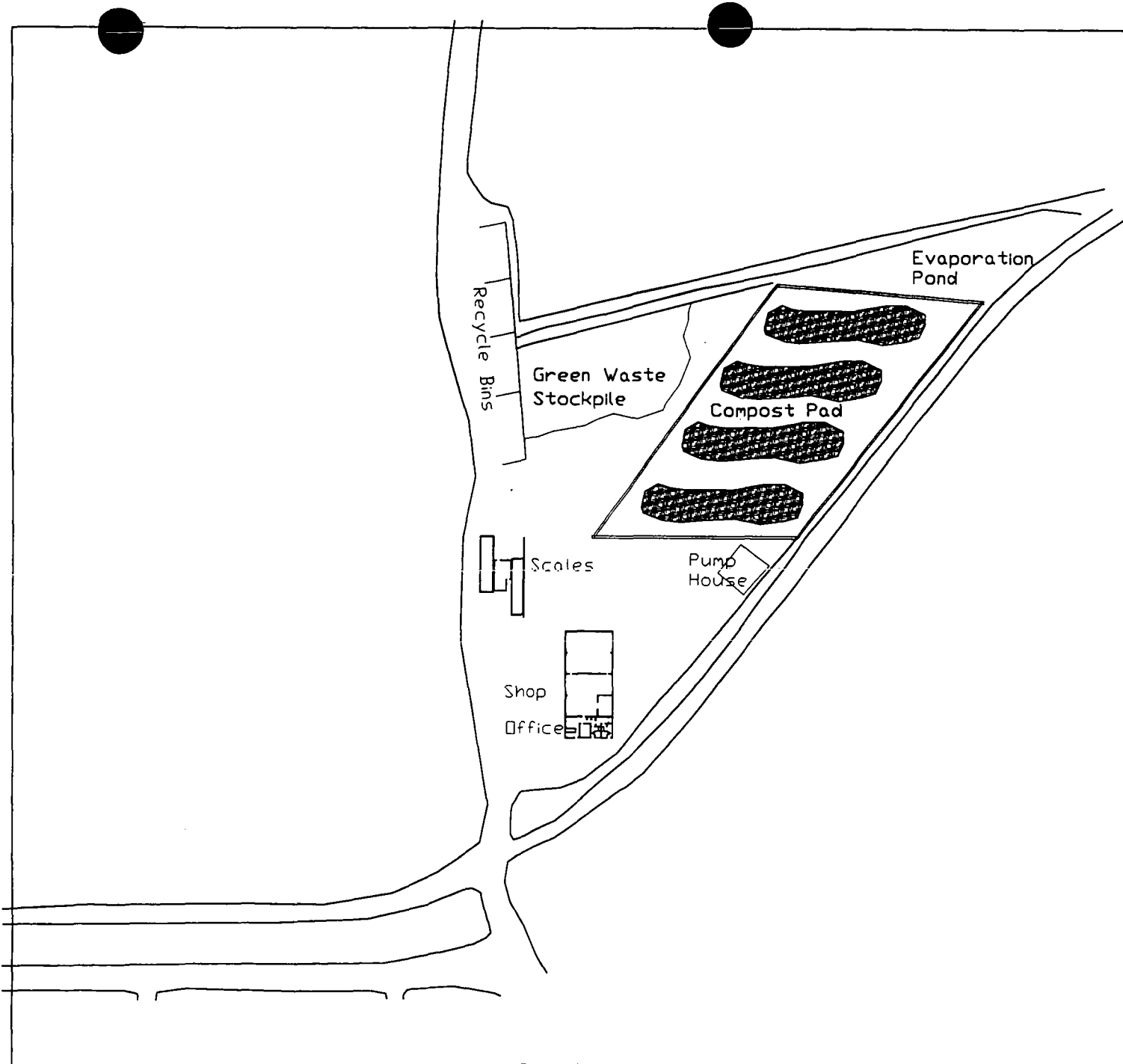
special.Bou

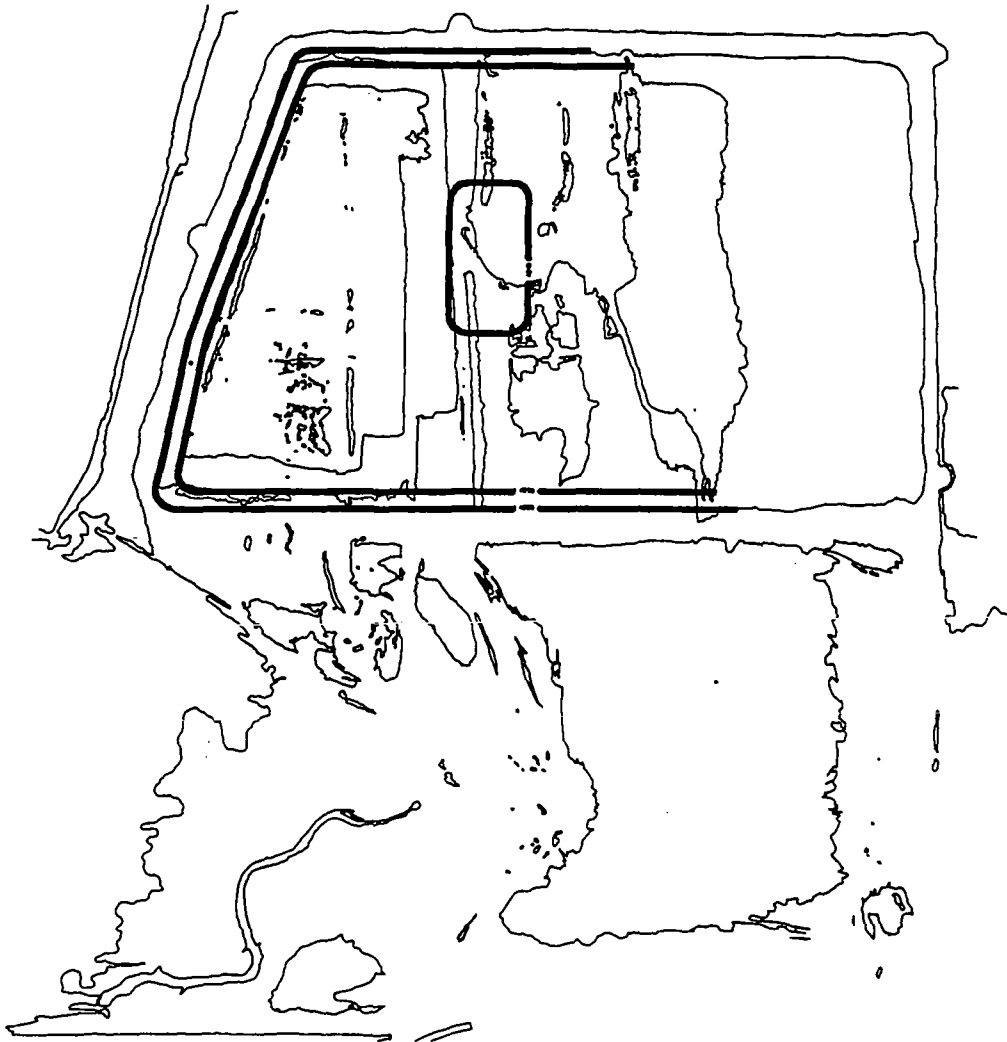
I hereby certify that the City of Bountiful accepts this property.

Kim J. Coleman  
Kim J. Coleman  
Deputy City Recorder  
City of Bountiful



APPENDIX B  
PLAN DRAWINGS

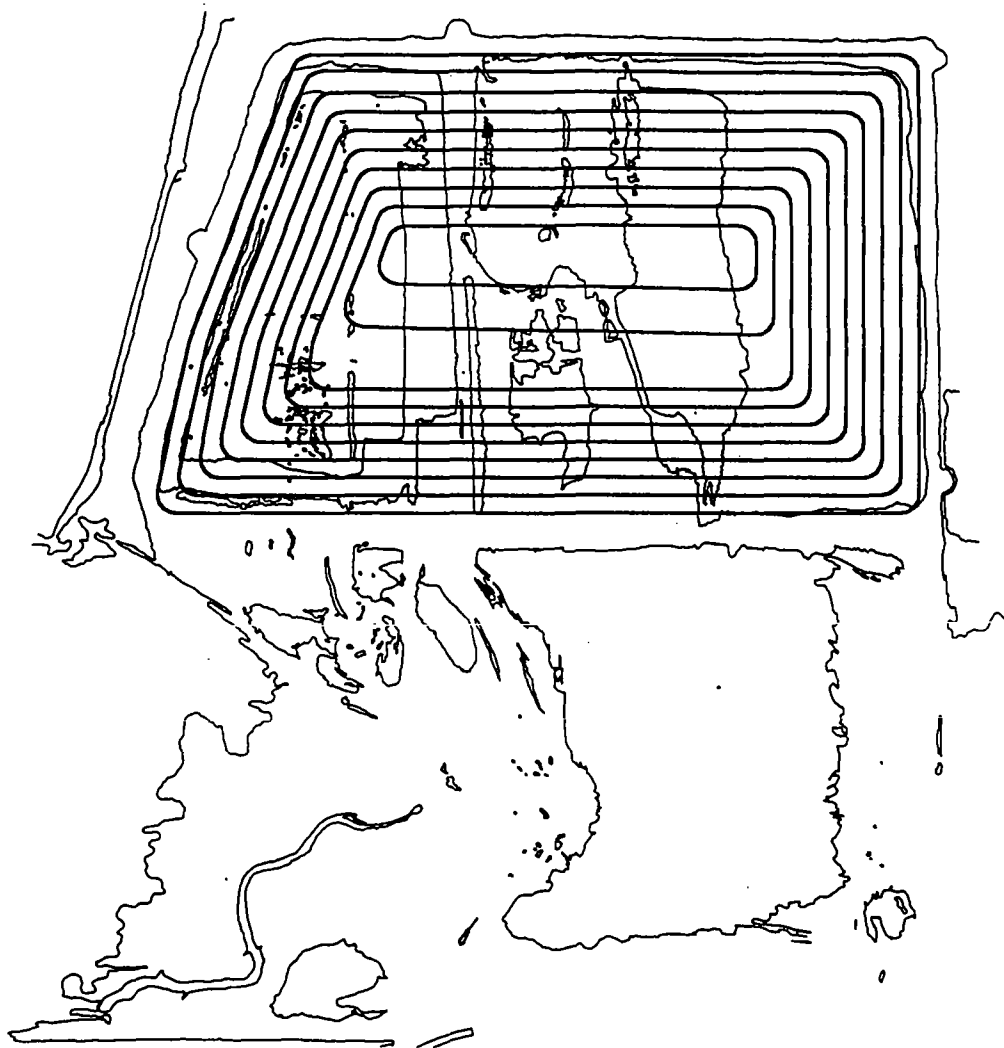




BOUNTIFUL CITY ENGINEERING  
BOUNTIFUL CITY

PHAS  
CURRENT

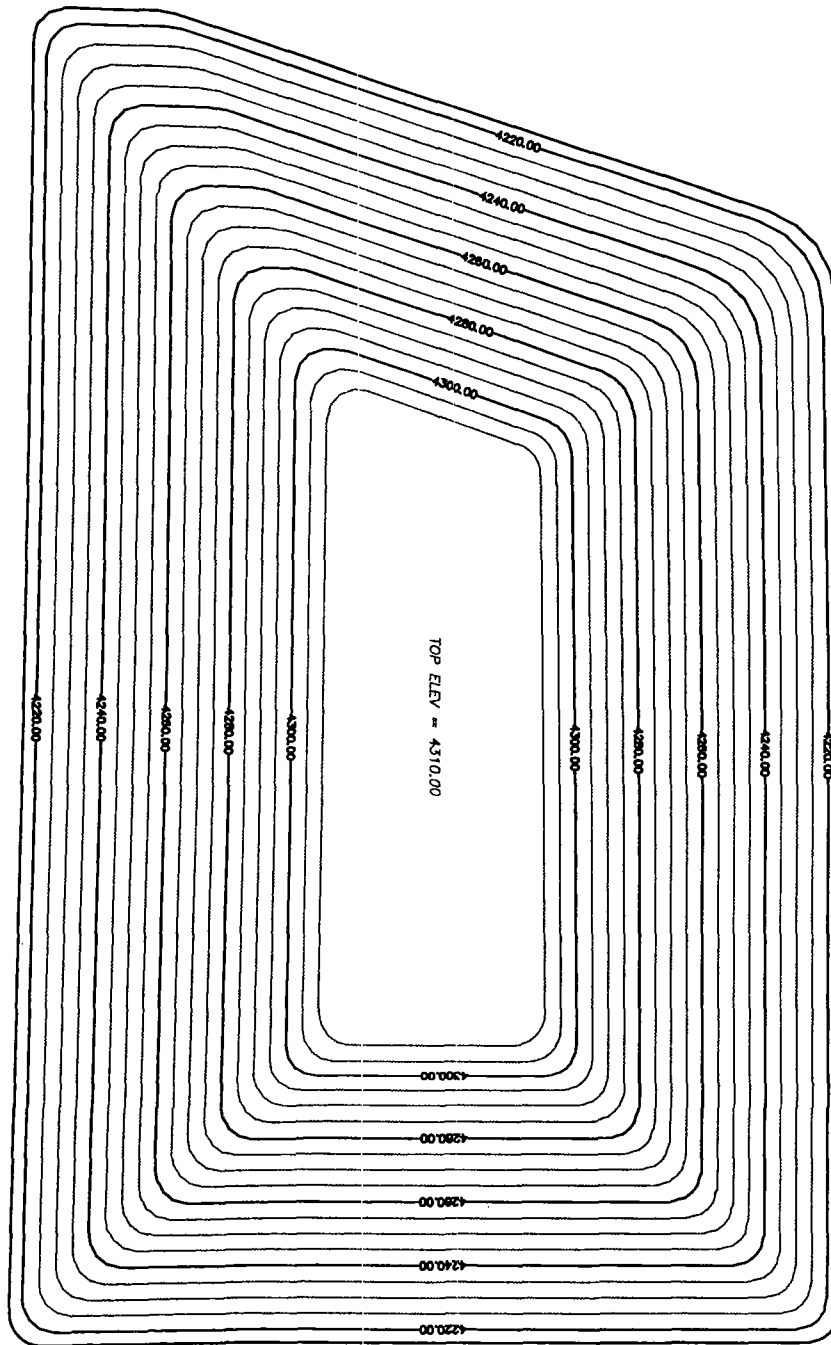
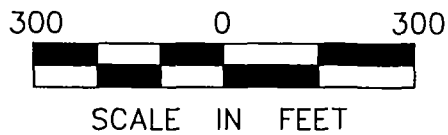
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BOUNTIFUL CITY ENGINEERING  
BOUNTIFUL CITY

PHASE

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BOUNTIFUL CITY ENGINEERING DEPARTMENT  
BOUNTIFUL, UTAH

790 South 100 East Bountiful, Utah 84011 (801)298-6126 ph 298-6033 fax

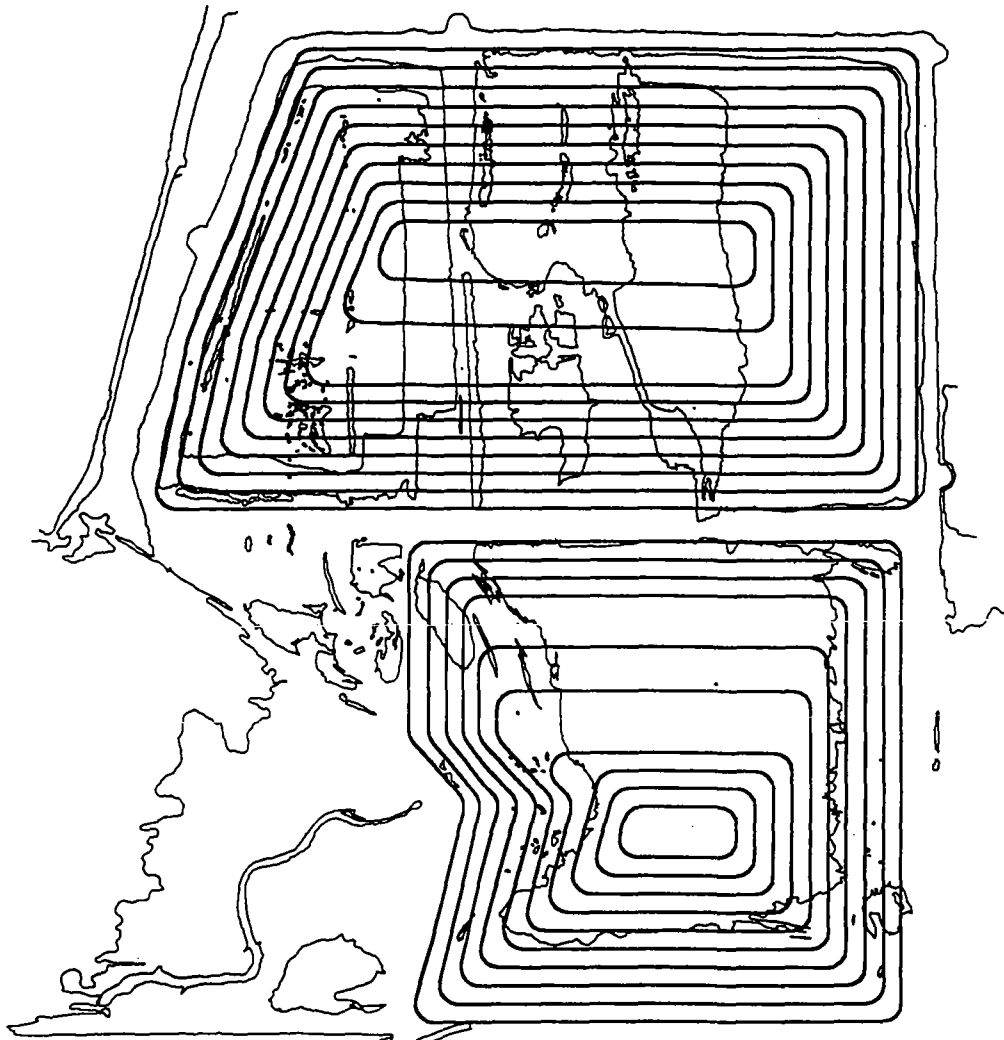
No.	DATE	BY	DESCRIPTION

BOUNTIFUL SANITARY LANDFILL  
PHASE 2 GRADING PLAN

SHEET

1

OF 4



BOUNTIFUL CITY ENGINEERING  
BOUNTIFUL CITY

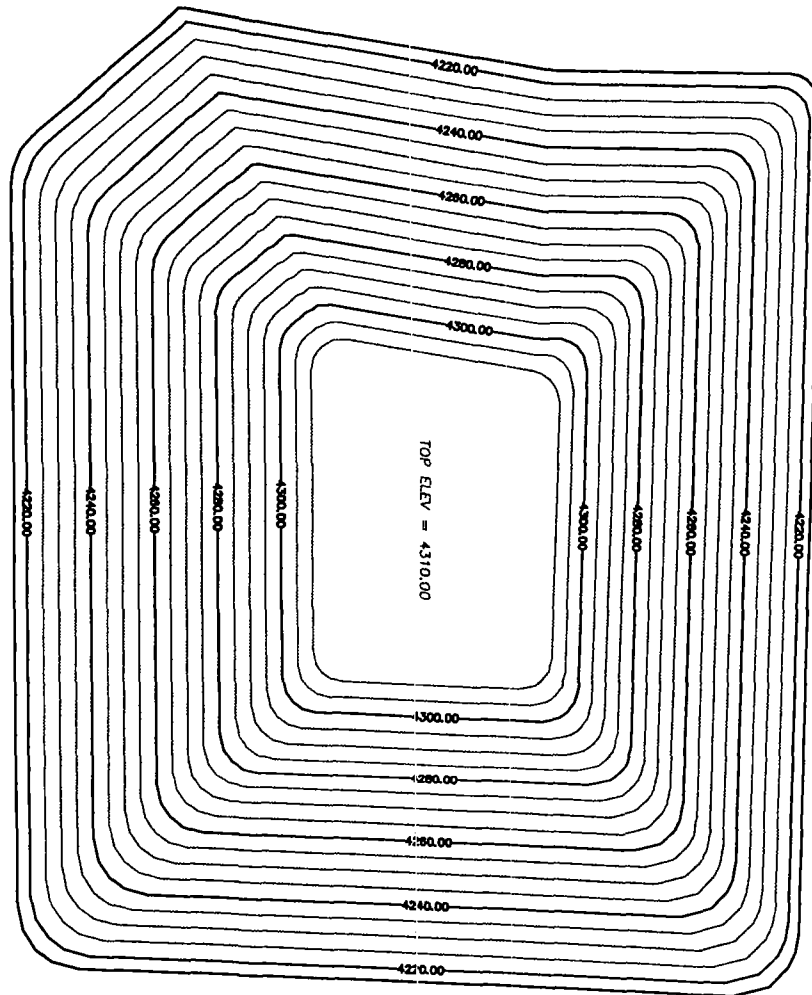
PHASE

DESIGN MWF	BOOK
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CHECK	CANADIAN

300 0 300



SCALE IN FEET



BOUNTIFUL CITY ENGINEERING DEPARTMENT  
BOUNTIFUL, UTAH

790 South 100 East Bountiful, Utah 84011 (801)298-6125 ph 298-6033 fax

No.	DATE	BY	DESCRIPTION
1	02/05	LNC	2005 PERMIT RENEWAL

BOUNTIFUL SANITARY LANDFILL

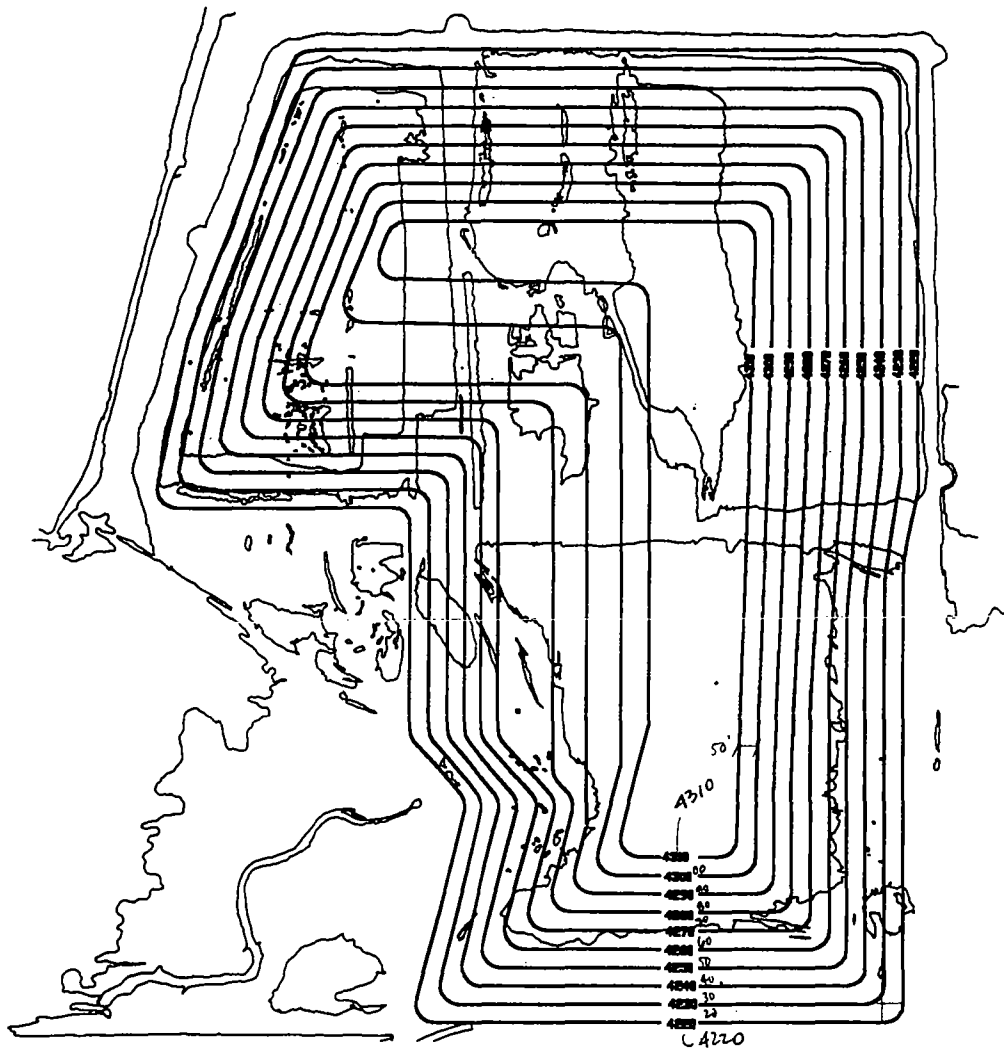
PHASE 3 GRADING PLAN

SHEET

2

OF 4





BOUNTIFUL CITY ENGINEERING  
BOUNTIFUL CITY

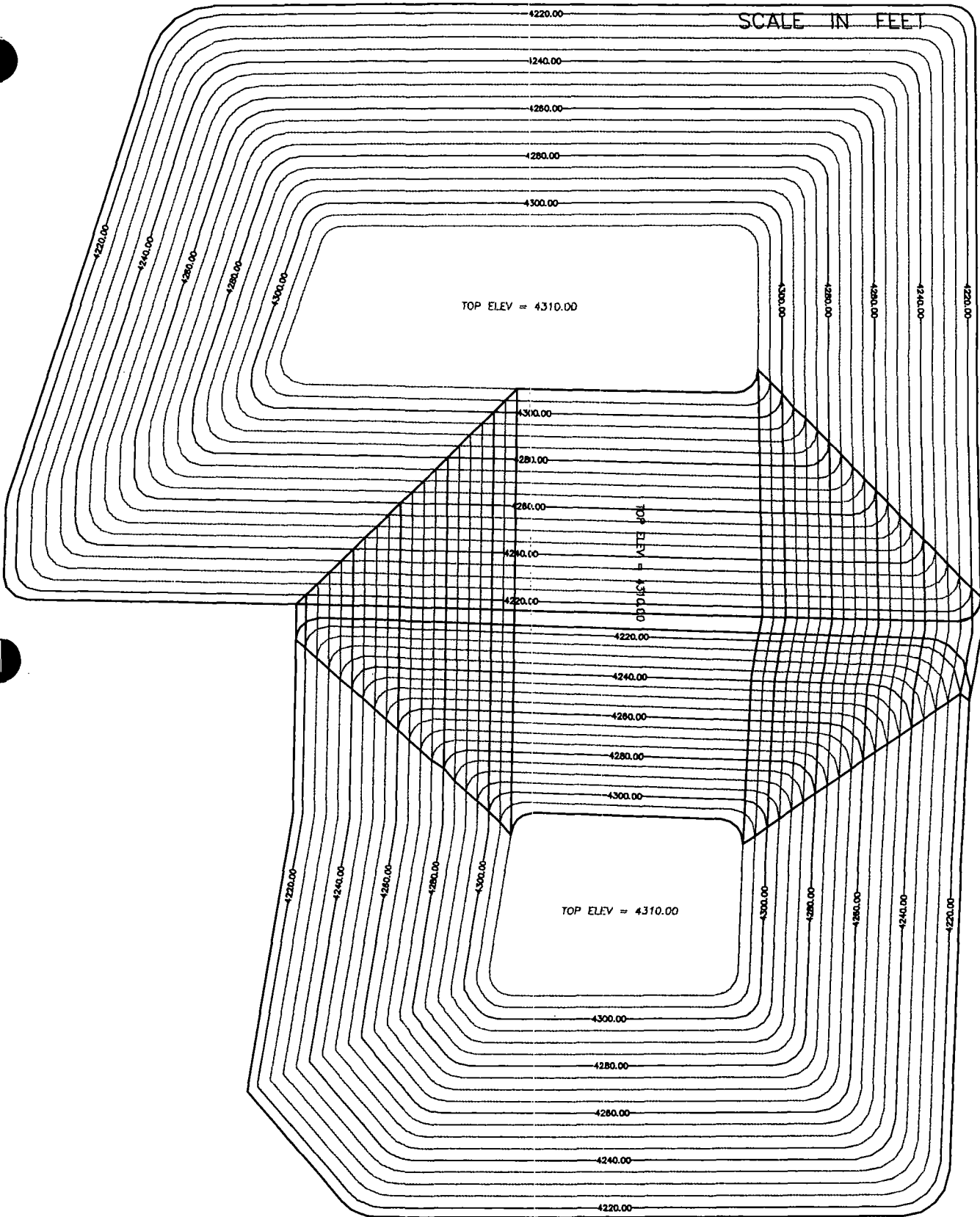
PHASE  
FINAL

DESIGN MWF	BOOK
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SCALE IN FEET



BOUNTIFUL CITY ENGINEERING DEPARTMENT  
BOUNTIFUL, UTAH

790 South 100 East Bountiful, Utah 84011 (801)298-6125 ph 298-6033 fax

No.	DATE	BY	DESCRIPTION
1	02/05	LNC	2005 PERMIT RENEWAL

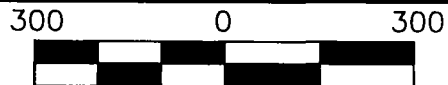
BOUNTIFUL SANITARY LANDFILL

PHASE 4 GRADING PLAN

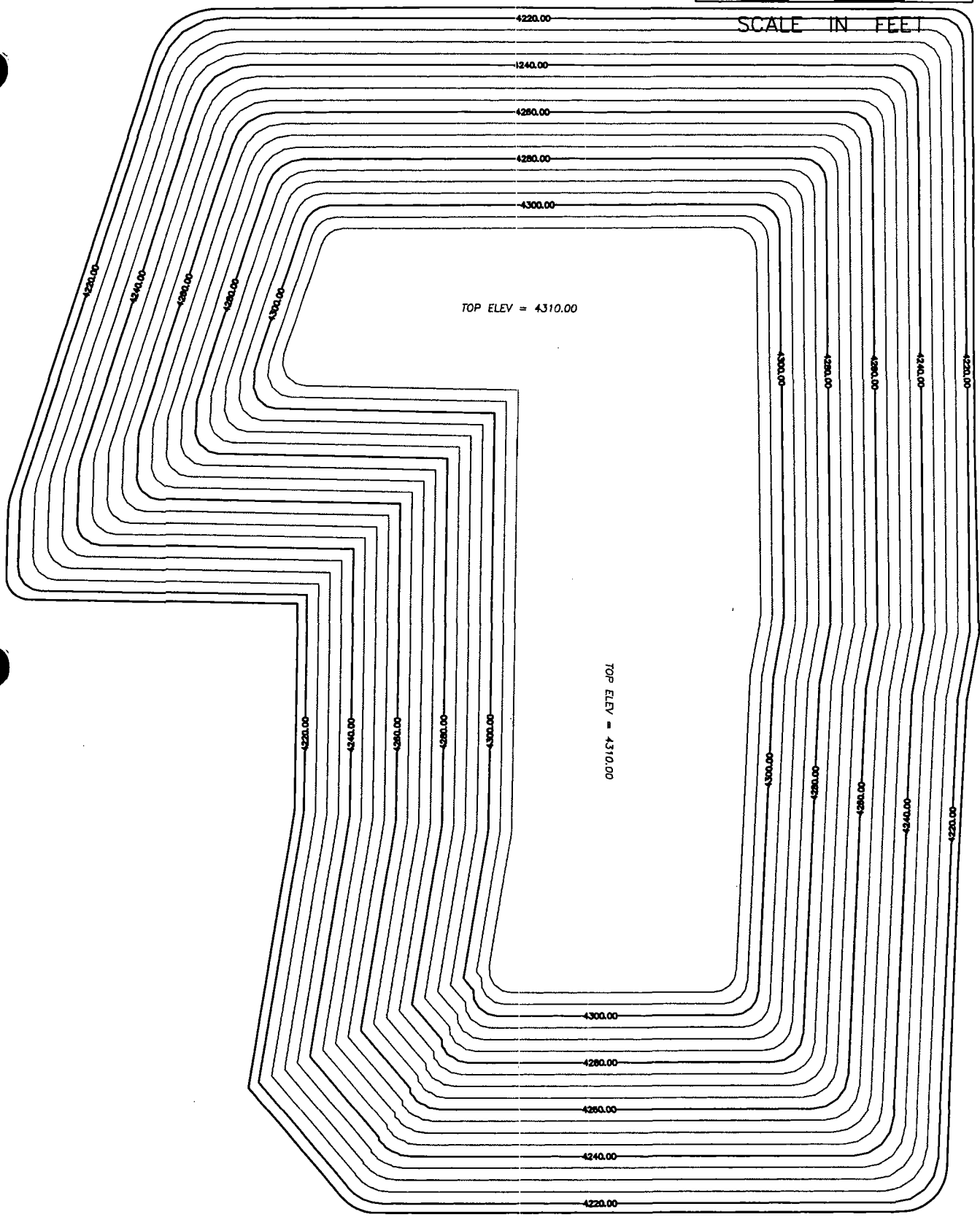
SHEET

3

OF 4



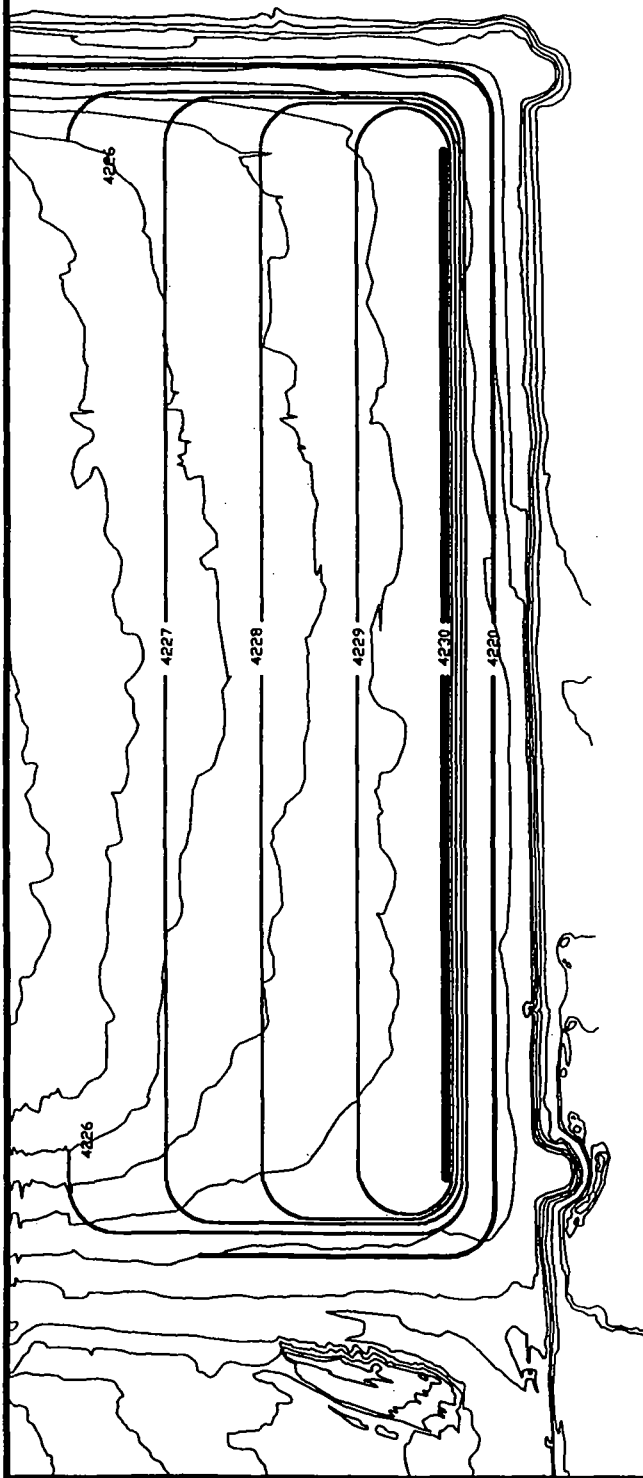
SCALE IN FEET



BOUNTIFUL CITY ENGINEERING DEPARTMENT BOUNTIFUL, UTAH				
790 South 100 East Bountiful, Utah 84011 (801)298-6125 ph 298-6033 fax				
No.	DATE	BY	DESCRIPTION	
1	02/05	LNC	2005 PERMIT RENEWAL	

BOUNTIFUL SANITARY LANDFILL  
FINAL GRADING PLAN

SHEET  
**4**  
OF 4



NORTH

EAST EDGE

NORTH HALF

FIRST LIFT

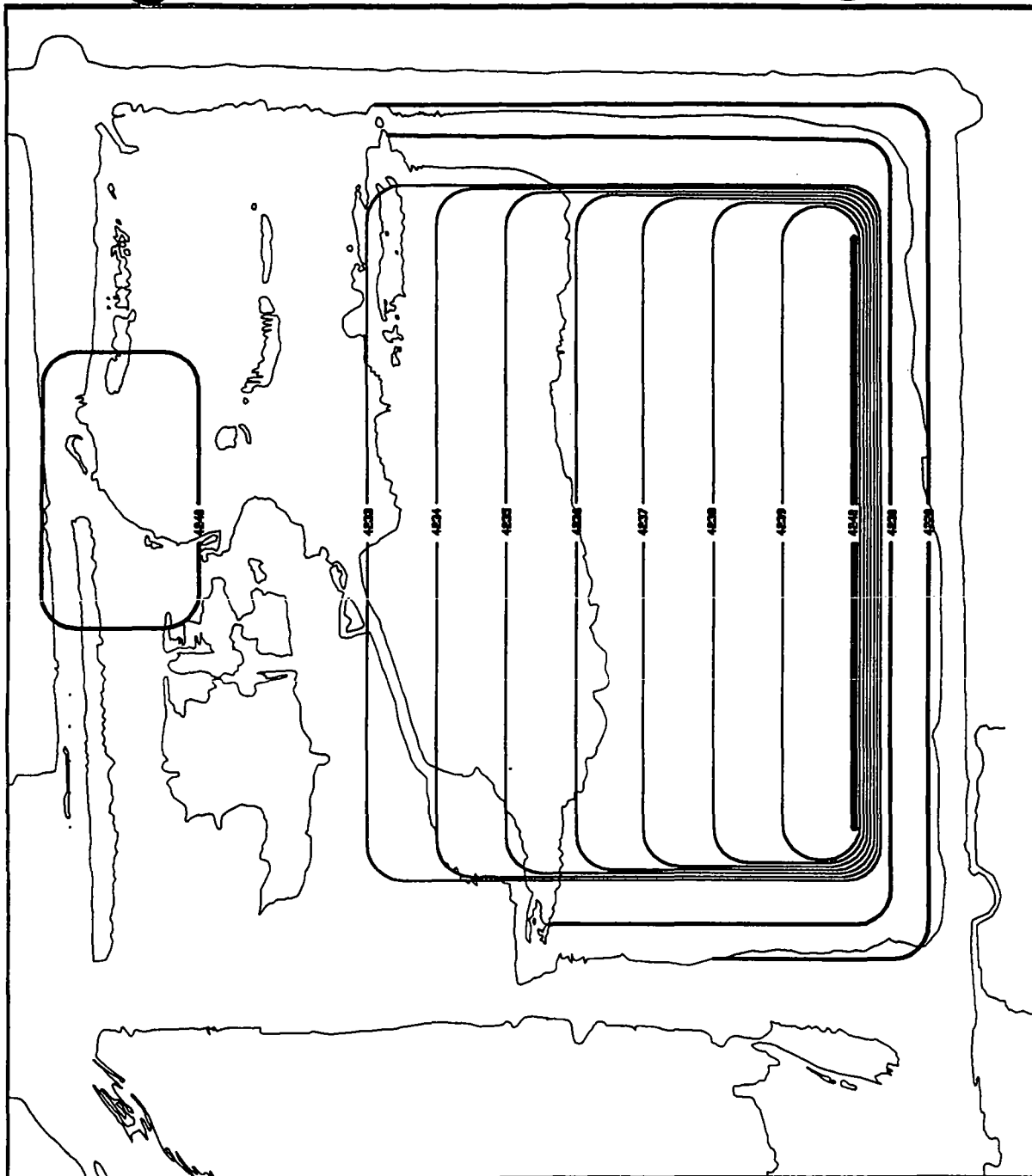
10' THICK ON EAST EDGE

SLOPE 1% TOWARD THE WEST

**BOUNTIFUL CITY ENGINEERING DEPARTMENT  
BOUNTIFUL UTAH**

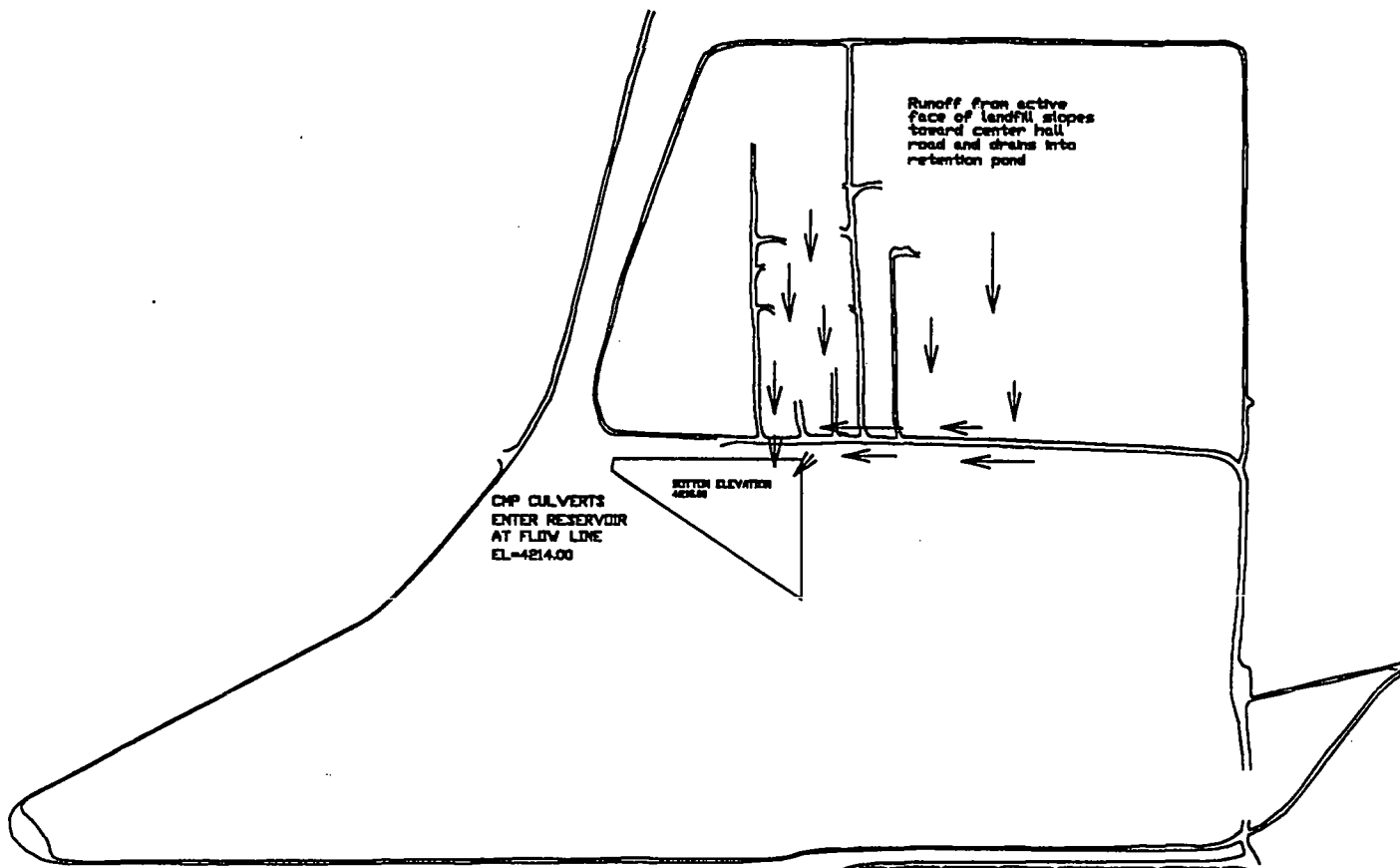
FILL PLAN 1st LIFT

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EAST EDGE

BOUNTIFUL CITY ENGINEERING		BOUNTIFUL CITY ENGINEERING	
FILL PL			
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BOUNTIFUL C

RUN-

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DRAWN	MWF
CHECK	

# BARD HYDROLOGY

MUST CONTAIN 100% OF A 24 Hr - 25 Yr STORM

## RAIN FALL INTENSITY:

a) From DAVIS COUNTY FLOOD CONTROL -  
 10 Hr = 2.29"/24 Hr      100 Hr = 3.26"/24 Hr  
 STRAIGHT LINE INTERPOLATION = 2.53"/24 Hr

b) UDOT NOMOGRAPH  
 25 Yr - 24 Hr = 0.11 in/hr = 2.64"/24 Hr

USE 2.64"/24 Hr

## RUN OFF AREA CALCULATIONS:

FROM 100 SCALE MAP - AREA = 1654077 SQ FT  
 = 37.97 ACRES

## RUN OFF VOLUME CALCULATION:

AREA OF RUNOFF =  $1,654,077/9 = 183,786$  SQ YDS

VOLUME =  $183,786 \times (2.64/36) = 13,477$  CU YDS  
13,500 CU YDS

ASSUME A AVERAGE DEPTH OF 5'

SURFACE AREA =  $13,500 \times 27/5 = 72,900$  SQ FT  
 = 1.67 ACRES FOR 1 STORM

MAX WATER ELEVATION = 4215.0

# AREA PROVIDED FOR RETENTION

$$\text{AREA @ 15} = (560)(470/2) = 131,600$$

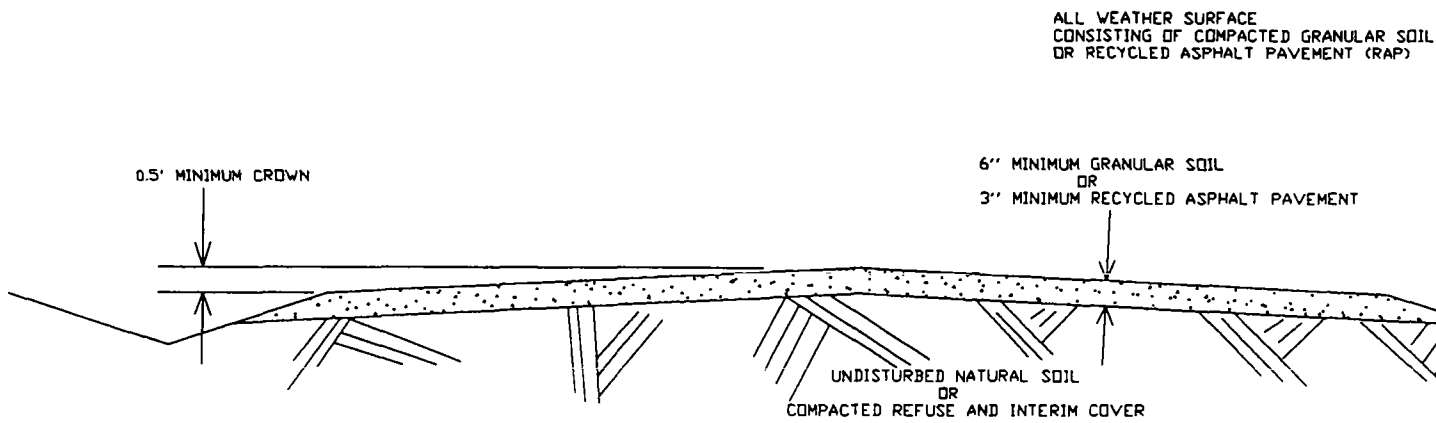
$$\text{AREA @ 10} = (500)(410/2) = 102,500$$

$$\bar{a} = 117,050 \text{ SQ FT}$$

$$\text{VOLUME} = 117,055 \times 5 = 585,250 \text{ CU FT} = 21,675 \text{ CU YD}$$

VOLUME = 16.1% OF ALL RUNOFF FROM A 25 YR - 24 HR STORM





BOUNTIFUL CITY ENGINEERING  
BOUNTIFUL CITY

TYPICAL 20' ACCESS ROAD

DESIGN	MWF	BOOK
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**APPENDIX C**  
**RECORD KEEPING FORMS**

Date 04/11/98  
Time 18:15:55

City of Bountiful, Utah BOUNTIFUL SANITARY LANDFILL

Page 11

TICKET REPORT  
Daily Summary

Ticket #	Date	Time	Reference	Account	Customer	Vehicle	Material	Quantity	Type	Rate	Amount
----------	------	------	-----------	---------	----------	---------	----------	----------	------	------	--------

# OF TICKETS	84
# OF RECORDS	84
# OF CUSTOMERS	6
# OF TRUCK PERMITS	2
TOTAL VOLUME	0.00
AVG. CU YD/LOAD	0.00
INBOUND WEIGHT	14.78
OUTBOUND WEIGHT	39.90
TOTAL WEIGHT	54.68
AVG. TON/LOAD	0.65
NET SALES	1,562.00

CASH RECEIVED	851.00
CHECKS RECEIVED	630.00
BANK CARD CHARGES	0.00
TOTAL COLLECTIONS	1,481.00
AMOUNT PAID OUT	0.00

UPLOAD STATISTICS: 02000019.TXT

NUMBER OF RECORDS	84
CHARGE SALES AMOUNT	81.00
CASH SALES AMOUNT	1481.00
PAYMENTS ON ACCOUNT	0.00
NET UPLOAD AMOUNT	1562.00

DAILY CLOSE COMPLETED: 000019

Site 02 04/11/98 18:19:34 MATT

Date 04/11/98  
Time 18:15:55

TICKET REPORT  
Material Summary

Material	Description	Tickets	Count	Volume	Inbound wt	Outbound wt	Total wt	Net sales	Receipts	AR Change
CONST	Construction mat.	8	0	0	3	0	3	87.00	77.00	10.00
COMP	Compost w/out sludge	52	0	0	0	42	42	1153.00	1153.00	0.00
CONC	Concrete	7	0	0	10	0	10	183.00	163.00	20.00
HH \$3	House Hold \$3	2	2	0	0	0	0	6.00	6.00	0.00
GW3	\$12 Green Waste	2	2	0	0	0	0	24.00	24.00	0.00
WC	Wood Chips	3	0	0	0	1	1	28.00	28.00	0.00
GW	\$3.00 Green Waste	7	7	0	0	0	0	21.00	12.00	9.00
HH \$12	House Hold \$12	1	1	0	0	0	0	12.00	12.00	0.00
GW2	\$6.00 Green Waste	1	1	0	0	0	0	6.00	6.00	0.00
MW	Mixed Waste	1	0	0	2	0	2	42.00	0.00	42.00
		84	13	0	15	43	58	1562.00	1481.00	81.00

Date 02/09/05  
Time 05:00:15 PM

City of Bountiful, UT

## Ticket Report

All Tickets in Batch File

Ticket #	Date	Time	Reference	Account	Customer	Vehicle	Material	Quantity
318460-0	02/09/05	08:03		107	R R ROOFING		CONST	3.88
318461-0	02/09/05	08:46	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19.90
318462-0	02/09/05	08:47	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19.18
318463-0	02/09/05	08:52	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	20.76
318464-0	02/09/05	08:58	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18.10
318465-0	02/09/05	09:03	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19.30
318466-0	02/09/05	09:14		119	GARNER & ASSOC.		HH \$3	1.00
318467-0	02/09/05	09:40		0	CASH CUSTOMER		HH \$3	1.00
318468-0	02/09/05	09:40		0	CASH CUSTOMER		HH \$3	1.00
318469-0	02/09/05	09:43		0	CASH CUSTOMER		HH \$3	1.00
318470-0	02/09/05	09:52	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17.06
318471-0	02/09/05	09:53		100	BOUNTIFUL CITY SANIT BC-271		BCW	5.34
318472-0	02/09/05	09:53		25	DAVIS COUNTY SCHOOL		HH \$3	1.00
318473-0	02/09/05	09:56	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	15.63
318474-0	02/09/05	09:58		0	CASH CUSTOMER		HH \$3	1.00
318475-0	02/09/05	09:58		0	CASH CUSTOMER		HH \$3	1.00
318476-0	02/09/05	10:01	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	13.09
318477-0	02/09/05	10:08	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	11.91
318478-0	02/09/05	10:12		0	CASH CUSTOMER		HH \$3	1.00
318479-0	02/09/05	10:50	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	22.57
318480-0	02/09/05	10:51	BASIN	0	CASH CUSTOMER		FREE-DIRT	14.60
318481-0	02/09/05	10:51		0	CASH CUSTOMER		HH \$3	1.00
318482-0	02/09/05	10:51		0	CASH CUSTOMER		HH \$3	1.00
318483-0	02/09/05	10:55	5TH BASIN	0	CASH CUSTOMER		FREE-DIRT	12.84
318484-0	02/09/05	10:58	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	20.14
318485-0	02/09/05	11:04	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17.11
318486-0	02/09/05	11:07	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	16.51
318487-0	02/09/05	11:18	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19.97
318488-0	02/09/05	11:32		0	CASH CUSTOMER		HH \$3	1.00
318489-0	02/09/05	11:35	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	12.56
318490-0	02/09/05	11:43	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	13.32
318491-0	02/09/05	11:47		0	CASH CUSTOMER		COMP	0.81
318492-0	02/09/05	11:47		0	CASH CUSTOMER		HH \$3	1.00
318493-0	02/09/05	11:47		0	CASH CUSTOMER		HH \$3	1.00
318494-0	02/09/05	11:49		40	GREEN DISPOSAL		MW	7.88
318495-0	02/09/05	11:56		14	BRODERICK CONSTRUCTI		CONST	0.69
318496-0	02/09/05	11:57	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	23.42
318497-0	02/09/05	11:58		100	BOUNTIFUL CITY SANIT BC-270		BCW	5.40
318498-0	02/09/05	12:10	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21.80
318499-0	02/09/05	12:14	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17.03
318500-0	02/09/05	12:16		0	CASH CUSTOMER		HH \$3	1.00
318501-0	02/09/05	12:17	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	16.77
318502-0	02/09/05	12:25	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	5.69

Date 02/09/05  
Time 05:00:15 PM

City of Bountiful, UT

## Ticket Report

All Tickets in Batch File

Ticket #	Date	Time	Reference	Account	Customer	Vehicle	Material	Quantity
318503-0	02/09/05	12:26	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	20.10
318504-0	02/09/05	12:26		100	BOUNTIFUL CITY	SANIT BC-271	BCW	8.53
318505-0	02/09/05	12:41		100	BOUNTIFUL CITY	SANIT BC-258	BCW	9.57
318506-0	02/09/05	12:45		100	BOUNTIFUL CITY	SANIT BC-254	BCW	5.71
318507-0	02/09/05	13:00		0	CASH CUSTOMER		HH \$3	1.00
318508-0	02/09/05	13:08		0	CASH CUSTOMER		FREE-DIRT	10.73
318509-0	02/09/05	13:10		0	CASH CUSTOMER		HH \$3	1.00
318510-0	02/09/05	13:12		100	BOUNTIFUL CITY	SANIT BC-273	BCW	5.42
318511-0	02/09/05	13:15		100	BOUNTIFUL CITY	SANIT BC-270	BCW	1.95
318512-0	02/09/05	13:23	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	13.42
318513-0	02/09/05	13:30	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	15.30
318514-0	02/09/05	13:41		0	CASH CUSTOMER		HH \$3	1.00
318515-0	02/09/05	13:43		0	CASH CUSTOMER		GW2	1.00
318516-0	02/09/05	13:55	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21.98
318517-0	02/09/05	14:00	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	7.57
318518-0	02/09/05	14:08		0	CASH CUSTOMER		HH \$3	1.00
318519-0	02/09/05	14:09		0	CASH CUSTOMER		HH \$3	1.00
318520-0	02/09/05	14:34	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18.65
318521-0	02/09/05	14:36	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19.97
318522-0	02/09/05	14:38		150	SQUIRES CONSTRUCTION		CONST	1.49
318523-0	02/09/05	14:44	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	9.17
318524-0	02/09/05	15:03		40	GREEN DISPOSAL		MW	3.78
318525-0	02/09/05	15:07		0	CASH CUSTOMER		CONST	0.29
318526-0	02/09/05	15:37	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21.34
318527-0	02/09/05	15:40	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21.19
318528-0	02/09/05	15:54		0	CASH CUSTOMER		HH \$3	1.00
318529-0	02/09/05	15:55		0	CASH CUSTOMER		HH \$3	1.00
318530-0	02/09/05	15:57		0	CASH CUSTOMER		HH2 \$6	1.00
318531-0	02/09/05	16:03	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	16.30
318532-0	02/09/05	16:23		0	CASH CUSTOMER		HH \$3	1.00
318533-0	02/09/05	16:27		0	CASH CUSTOMER		HH \$3	1.00
318534-0	02/09/05	16:28		0	CASH CUSTOMER		HH \$3	1.00
318535-0	02/09/05	16:43		0	CASH CUSTOMER		HH \$3	1.00
318536-0	02/09/05	16:43	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17.35
318537-0	02/09/05	16:45	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	22.14
318538-0	02/09/05	16:51	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18.15
318539-0	02/09/05	16:55	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18.75

Date 02/09/05  
Time 05:00:15 PM

City of Bountiful, UT

## Ticket Report

Charge Tickets Only

Ticket #	Date	Time	Reference	Account	Customer	Vehicle	Material	Quantity
318460-0	02/09/05	08:03		107	R R ROOFING		CONST	3.88
318466-0	02/09/05	09:14		119	GARNER & ASSOC.		HH \$3	1.00
318471-0	02/09/05	09:53		100	BOUNTIFUL CITY SANIT	BC-271	BCW	5.34
318472-0	02/09/05	09:53		25	DAVIS COUNTY SCHOOL		HH \$3	1.00
318494-0	02/09/05	11:49		40	GREEN DISPOSAL		MW	7.88
318495-0	02/09/05	11:56		14	BRODERICK CONSTRUCTI		CONST	0.69
318497-0	02/09/05	11:58		100	BOUNTIFUL CITY SANIT	BC-270	BCW	5.40
318504-0	02/09/05	12:26		100	BOUNTIFUL CITY SANIT	BC-271	BCW	8.53
318505-0	02/09/05	12:41		100	BOUNTIFUL CITY SANIT	BC-258	BCW	9.57
318506-0	02/09/05	12:45		100	BOUNTIFUL CITY SANIT	BC-254	BCW	5.71
318510-0	02/09/05	13:12		100	BOUNTIFUL CITY SANIT	BC-273	BCW	5.42
318511-0	02/09/05	13:15		100	BOUNTIFUL CITY SANIT	BC-270	BCW	1.95
318522-0	02/09/05	14:38		150	SQUIRES CONSTRUCTION		CONST	1.49
318524-0	02/09/05	15:03		40	GREEN DISPOSAL		MW	3.78

Date 02/09/05  
Time 05:00:15 PM

City of Bountiful, UT

## Ticket Report

Cash Tickets Only

Ticket #	Date	Time	Reference	Account	Customer	Vehicle	Material	Quantity
318461-0	02/09/05	08:46	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	19.90
318462-0	02/09/05	08:47	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	19.18
318463-0	02/09/05	08:52	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	20.76
318464-0	02/09/05	08:58	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	18.10
318465-0	02/09/05	09:03	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	19.30
318467-0	02/09/05	09:40		0 CASH	CUSTOMER		HH \$3	1.00
318468-0	02/09/05	09:40		0 CASH	CUSTOMER		HH \$3	1.00
318469-0	02/09/05	09:43		0 CASH	CUSTOMER		HH \$3	1.00
318470-0	02/09/05	09:52	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	17.06
318473-0	02/09/05	09:56	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	15.63
318474-0	02/09/05	09:58		0 CASH	CUSTOMER		HH \$3	1.00
318475-0	02/09/05	09:58		0 CASH	CUSTOMER		HH \$3	1.00
318476-0	02/09/05	10:01	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	13.09
318477-0	02/09/05	10:08	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	11.91
318478-0	02/09/05	10:12		0 CASH	CUSTOMER		HH \$3	1.00
318479-0	02/09/05	10:50	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	22.57
318480-0	02/09/05	10:51	BASIN	0 CASH	CUSTOMER		FREE-DIRT	14.60
318481-0	02/09/05	10:51		0 CASH	CUSTOMER		HH \$3	1.00
318482-0	02/09/05	10:51		0 CASH	CUSTOMER		HH \$3	1.00
318483-0	02/09/05	10:55	5TH BASIN	0 CASH	CUSTOMER		FREE-DIRT	12.84
318484-0	02/09/05	10:58	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	20.14
318485-0	02/09/05	11:04	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	17.11
318486-0	02/09/05	11:07	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	16.51
318487-0	02/09/05	11:18	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	19.97
318488-0	02/09/05	11:32		0 CASH	CUSTOMER		HH \$3	1.00
318489-0	02/09/05	11:35	CENTERVILL	0 CASH	CUSTOMER		FREE-DIRT	12.56
318490-0	02/09/05	11:43	CENTERVILL	0 CASH	CUSTOMER		FREE-DIRT	13.32
318491-0	02/09/05	11:47		0 CASH	CUSTOMER		COMP	0.81
318492-0	02/09/05	11:47		0 CASH	CUSTOMER		HH \$3	1.00
318493-0	02/09/05	11:47		0 CASH	CUSTOMER		HH \$3	1.00
318496-0	02/09/05	11:57	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	23.42
318498-0	02/09/05	12:10	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	21.80
318499-0	02/09/05	12:14	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	17.03
318500-0	02/09/05	12:16		0 CASH	CUSTOMER		HH \$3	1.00
318501-0	02/09/05	12:17	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	16.77
318502-0	02/09/05	12:25	CENTERVILL	0 CASH	CUSTOMER		FREE-DIRT	5.69
318503-0	02/09/05	12:26	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	20.10
318507-0	02/09/05	13:00		0 CASH	CUSTOMER		HH \$3	1.00
318508-0	02/09/05	13:08		0 CASH	CUSTOMER		FREE-DIRT	10.73
318509-0	02/09/05	13:10		0 CASH	CUSTOMER		HH \$3	1.00
318512-0	02/09/05	13:23	CENTERVILL	0 CASH	CUSTOMER		FREE-DIRT	13.42
318513-0	02/09/05	13:30	B MEADOWS	0 CASH	CUSTOMER		FREE-DIRT	15.30
318514-0	02/09/05	13:41		0 CASH	CUSTOMER		HH \$3	1.00



Date 02/09/05  
Time 05:00:15 PM

City of Bountiful, UT

## Ticket Report

Cash Tickets Only

Ticket #	Date	Time	Reference	Account	Customer	Vehicle	Material	Quantity
318515-0	02/09/05	13:43		0	CASH CUSTOMER		GW2	1.00
318516-0	02/09/05	13:55	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21.98
318517-0	02/09/05	14:00	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	7.57
318518-0	02/09/05	14:08		0	CASH CUSTOMER		HH \$3	1.00
318519-0	02/09/05	14:09		0	CASH CUSTOMER		HH \$3	1.00
318520-0	02/09/05	14:34	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18.65
318521-0	02/09/05	14:36	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	19.97
318523-0	02/09/05	14:44	CENTERVILL	0	CASH CUSTOMER		FREE-DIRT	9.17
318525-0	02/09/05	15:07		0	CASH CUSTOMER		CONST	0.29
318526-0	02/09/05	15:37	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21.34
318527-0	02/09/05	15:40	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	21.19
318528-0	02/09/05	15:54		0	CASH CUSTOMER		HH \$3	1.00
318529-0	02/09/05	15:55		0	CASH CUSTOMER		HH \$3	1.00
318530-0	02/09/05	15:57		0	CASH CUSTOMER		HH2 \$6	1.00
318531-0	02/09/05	16:03	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	16.30
318532-0	02/09/05	16:23		0	CASH CUSTOMER		HH \$3	1.00
318533-0	02/09/05	16:27		0	CASH CUSTOMER		HH \$3	1.00
318534-0	02/09/05	16:28		0	CASH CUSTOMER		HH \$3	1.00
318535-0	02/09/05	16:43		0	CASH CUSTOMER		HH \$3	1.00
318536-0	02/09/05	16:43	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	17.35
318537-0	02/09/05	16:45	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	22.14
318538-0	02/09/05	16:51	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18.15
318539-0	02/09/05	16:55	B MEADOWS	0	CASH CUSTOMER		FREE-DIRT	18.75

Date 02/09/05  
Time 05:00:15 PM

City of Bountiful, UT

## Ticket Report

### Customer Summary

Account	Customer	Tickets	Count	Volume	Inbound wt	Outbound wt	Net sales
107	R R ROOFING	1	0	0	3.88	0.00	81.00
0	CASH CUSTOMER	66	25	0	661.66	0.81	111.00
119	GARNER & ASSOC.	1	1	0	0.00	0.00	3.00
100	BOUNTIFUL CITY SANITATION	7	0	0	41.92	0.00	0.00
25	DAVIS COUNTY SCHOOL DIST	1	1	0	0.00	0.00	3.00
40	GREEN DISPOSAL	2	0	0	11.66	0.00	244.00
14	BRODERICK CONSTRUCTION	1	0	0	0.69	0.00	14.00
150	SQUIRES CONSTRUCTION	1	0	0	1.49	0.00	31.00
		80	27	0	721.30	0.81	487.00

Date 02/09/05  
Time 05:00:15 PM

City of Bountiful, UT

## Ticket Report

### Material Summary

Material	Description	Tickets	Count	Volume	Inbound wt	Outbound wt	Net sales
CONST	Construction mat.	4	0	0	6.35	0.00	132.00
FREE-DIRT	CITY HAULING	39	0	0	661.37	0.00	0.00
HH \$3	House Hold \$3	25	25	0	0.00	0.00	75.00
BCW	Bountiful Waste	7	0	0	41.92	0.00	0.00
COMP	Compost w/out sludge	1	0	0	0.00	0.81	24.00
MW	Mixed Waste	2	0	0	11.66	0.00	244.00
GW2	\$6.00 Green Waste	1	1	0	0.00	0.00	6.00
HH2 \$6	House Hold	1	1	0	0.00	0.00	6.00
		80	27	0	721.30	0.81	487.00

Po Box 369  
 BOUNTIFUL SANITARY LANDFILL  
 Bountiful, Utah 84011-0369

000000  
 CASH CUSTOMER

SITE	TICKET	GR
02	000810	
WEIGHMASTER		
GEORGIA		
DATE IN		TIME
04/13/98		13:2
DATE OUT		TIME
04/13/98		13:2
VEHICLE		ROLL
REFERENCE		ORIGIN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE
1.00	EACH	\$3.00 Green Waste	3.00	3.00	0.00

Summer Hours from Apr. 1 to Nov. 1 -- 8:00 a.m. to 6:00 a.m.  
 Winter Hours from Nov. 1 to Apr. 1 -- 8:00 a.m. to 5:00 p.m.

SIGNATURE \_\_\_\_\_

BOUNTIFUL SANITARY LANDFILL  
P.O. BOX 369  
BOUNTIFUL, UTAH 84011-0369

Weighed: Jaime  
BILL TO: 0  
CASH CUSTOMER

Vehicle ID:  
Reference:

DATE IN: 02/10/2005 TIME IN: 08:39:09  
DATE OUT: 02/10/2005 TIME OUT: 08:39

INBOUND TICKET Number: 02-318540

STORED GROSS WT.	0 LB
STORED TARE WT.	0 LB
NET WEIGHT	0 LB

Qty	Description	Amount
1.00	House Hold \$3	3.00
NET CASH AMOUNT:		3.00

X\_\_\_\_\_

BOUNTIFUL SANITARY LANDFILL  
P.O. BOX 369  
BOUNTIFUL, UTAH 84011-0369

Weighed: Jaime  
BILL TO: 107  
R R ROOFING

Vehicle ID:  
Reference:

DATE IN: 02/10/2005 TIME IN: 09:00:56  
DATE OUT: 02/10/2005 TIME OUT: 09:16

INBOUND TICKET Number: 02-318543

SCALE 1 GROSS WT.	19260 LB
SCALE 2 TARE WT.	9140 LB
NET WEIGHT	10120 LB

Qty	Description	Amount
5.06	Construction mat.	106.00
NET CHARGE AMOUNT:		106.00

X\_\_\_\_\_

# BOUNTIFUL SANITARY LANDFILL

## METHANE GAS MONITORING

DATE:

LOCATION	METHANE CONCENTRATION (%)	PERCENT LOWER EXPLOSIVE LIMIT (%LEL)
Office _____		
Office _____		
Shop _____		
Shop _____		
Scale House		
North Boundary		
South Boundary		
East Boundary		
West Boundary		
Well DC-1		
Well DC-2		
Well DC-3		
Well DC-4		
Well JMM-1		
Well JMM-2		
Well JMM-3		
Well JMM-4		
Well JMM-5		
Well JMM-6		
Well JMM-7		
Well JMM-8		
Well BSL-1		
Well BSL-2		
Well BSL-3		

LOAD INSPECTION REPORT

# BOUNTIFUL SANITARY LANDFILL

## QUARTERLY INSPECTION REPORT

Date: \_\_\_\_\_

### Groundwater Monitoring system:

Locks \_\_\_\_\_

Protective Covers \_\_\_\_\_

Guard Posts \_\_\_\_\_

Total depths \_\_\_\_\_

Other \_\_\_\_\_

### Methane Monitoring System:

Equipment Calibration \_\_\_\_\_

Equipment Operation \_\_\_\_\_

Other \_\_\_\_\_

### Runoff retention system:

Berm Condition \_\_\_\_\_

Runoff Transport Ditch Condition \_\_\_\_\_

Erosion Concerns \_\_\_\_\_

Topsoil and vegetation condition \_\_\_\_\_

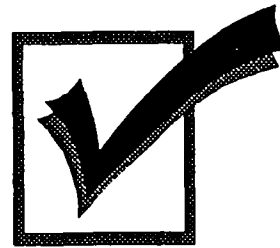
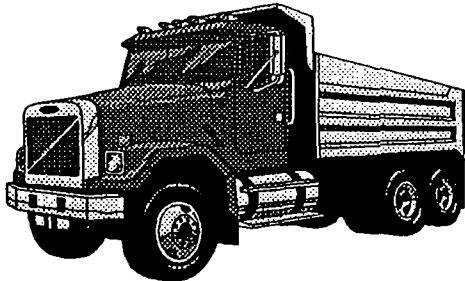
Other \_\_\_\_\_

### Deviations from approved plan of operation:

### Other Comments:

# **NOTICE !**

**RANDOM WASTE SCREENING IS PRACTICED  
HERE!**



**WE RESERVE THE RIGHT TO INSPECT ANY  
LOAD OR PORTION OF A LOAD ARRIVING AT  
OUR FACILITY.**

**WE WILL REJECT ALL:  
HAZARDOUS WASTE  
PCBs  
LIQUIDS  
RADIOACTIVE WASTE  
AND**

**ANY WASTES DETERMINED UNACCEPTABLE  
BY OUR MANAGEMENT!**

**YOUR PARTICIPATION IN THIS  
PROGRAM IN NOT OPTIONAL!**



## Random Load Inspection Record

### INSPECTION INFORMATION

Inspector's Name: \_\_\_\_\_  
Date of Inspection: \_\_\_\_\_  
Time of Inspection: \_\_\_\_\_  
Facility Name: \_\_\_\_\_

### TRANSPORTATION COMPANY INFORMATION

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone #: \_\_\_\_\_

### VEHICLE INFORMATION

Driver's Name: \_\_\_\_\_  
Vehicle Type: \_\_\_\_\_  
Vehicle License #: \_\_\_\_\_  
Vehicle's Last Stop: \_\_\_\_\_  
Vehicle Contents: \_\_\_\_\_

### OBSERVATIONS AND ACTIONS TAKEN

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Photo Documentation: \_\_\_\_ Yes \_\_\_\_ No

Driver's Signature\*: \_\_\_\_\_ Date: \_\_\_\_\_

Inspector's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

\* Driver's signature heron denotes: His presence during the inspection and does not admit, confirm or identity liability.

**BOUNTIFUL CITY  
SANITARY LANDFILL**

**Routine Waste Inspection Form**

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Truck Type: \_\_\_\_\_

Hauler: \_\_\_\_\_ License/Truck #: \_\_\_\_\_

Source of Material: \_\_\_\_\_  
\_\_\_\_\_

Other Information: \_\_\_\_\_  
\_\_\_\_\_

**Waster Composition**

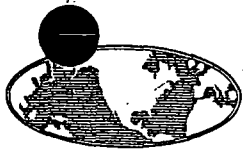
<b>Composition</b>	<b>Percent by Volume (estimated)</b>
Food Wastes	
Paper/Cardboard	
Plastics	
Textiles/Rubber/Leather	
Dirt/Ashes/Brick	
Vegetative Wastes	
Wood	
Glass	
Metals	
Household Hazardous Waste	
Tires	
Drywall	
Other Hazardous Wastes	

Comments:

Inspector Signature: \_\_\_\_\_

Date: \_\_\_\_\_

APPENDIX D  
TRAINING CERTIFICATES



**SWANA**<sup>®</sup>

SOLID WASTE ASSOCIATION  
of North America

SWANA CERTIFIED PROFESSIONAL

This is to certify that

***Terry Thompson***

has met the Solid Waste Association of North America's eligibility  
and passed a comprehensive examination. Therefore SWANA  
designates Terry Thompson as a:

**Certified Landfill Manager**

As of 07/19/2004 until 07/19/2007

Certification No. 50749

John A.  
Executive Director



**SWANA**<sup>®</sup>  
SOLID WASTE ASSOCIATION  
of North America

SWANA CERTIFIED PERSON

This is to certify that

***Jim Wood***

has met the Solid Waste Association of North America's eligibility  
and passed a comprehensive examination. Therefore SWANA  
designates Jim Wood as a:

**Certified Landfill Technical Associate**

As of 09/22/2004 until 09/22/2007

SOLID WASTE ASSOCIATION

Certification No. 60517

John  
Executive

**SWANA<sup>®</sup>**



ACKNOWLEDGES THAT

***Trevis Cabaness***

PARTICIPATED IN THE

***TRAINING SANITARY LANDFILL  
OPERATING PERSONNEL ON-SITE  
TRAINING COURSE***

PRESENTED IN

***St. George, UT***

***4-25-02***

A handwritten signature in black ink, appearing to read 'Wynecta Fisher', is located in the bottom right corner of the certificate area.

Wynecta Fisher

**SWANA<sup>®</sup>**



ACKNOWLEDGES THAT

***John McCowen***

PARTICIPATED IN THE

***TRAINING SANITARY LANDFILL  
OPERATING PERSONNEL ON-SITE  
TRAINING COURSE***

PRESENTED IN

***St. George, UT***

***4-25-02***

A handwritten signature in black ink, appearing to read 'Wynecta Fisher', is located in the bottom right corner of the certificate area.

*Wynecta Fisher*

SOLID WASTE ASSOCIATION OF  
NORTH AMERICA  
(Utah Beehive Chapter)



This is to certify that

**Jim Wood**

has successfully completed the

***Landfill Operator Training Course***

on September 8, 1994.

Trainer

Bud L. Stanford

Bud Stanford

Trainee

Dale Stephenson

Dale Stephenson



SOLID WASTE ASSOCIATION OF  
NORTH AMERICA  
(Utah Beehive Chapter)



This is to certify that

**Jim Wood**

has successfully completed the

***Solid Waste Screening Course***

on September 9, 1994.

Trainer

Budd Stanford

Bud Stanford

Trainer

Dale Stephenson

Dale Stephenson

# Community College Consortium for Health and Safety Training

*Jimmie Lynn Wood*

---

Has Completed And Passed A Course In:

**40 HR. SARA/OSHA HAZWOPER**

---

Date of Certificate: 3 March 1994  
Certificate Number: 1386  
Expiration Date: 3 March 1995  
Course No. & Sec: Haz-002.042

Contact Hours: 40  
Course Location: SLC, Utah  
Date of Course: Feb 28 - March 3, 1994  
Respirator Name & Model: North

Instructor:

*Neal K. Ostler*

---

Program Director:

*John Latkiewicz*

---

Training for this program was developed and delivered by the:

**Hazardous Materials Training And Research Institute**

**C.C.C.H.S.T.**

6301 Kirkwood Blvd., S.W.

P.O. Box 2068

Cedar Rapids, Iowa 52406

319-398-5677

# Community College Consortium for Health and Safety Training

*Trevis Cabaness*

Has Completed And Passed A Course In:

**40 HR. SARA/OSHA HAZWOPER**

Date of Certificate: 3 March 1994

Certificate Number: 1388

Expiration Date: 3 March 1995

Course No. & Sec: Haz-002.042

Contact Hours: 40

Course Location: SLC, Utah

Date of Course: Feb 28 - March 3, 1994

Respirator Name & Model: North

Instructor:

*Neal K. Ostler*

Program Director:

*John Latkiewicz*

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**C.C.C.H.S.T.**

6301 Kirkwood Blvd., S.W.

P.O. Box 2068

Cedar Rapids, Iowa 52406

319-398-5677

SANITARY LANDFILL  
EQUIPMENT REPLACEMENT TIME TABLE

TRUCK NO.	YEAR	DESCRIPTION	2005	2006	2007	2008	2009
2279	1994	Ford F800 Water Truck	-	-	50,000	-	-
2280	1989	Caterpillar Compactor	-	-	-	-	-
2281	1987	Ford 10-wheel Dump (Used)	-	-	-	-	30,000
2283	1993	Flatbed Service Truck	-	-	-	-	-
2284	1995	Caterpillar Track Dozer	-	-	-	-	-
2285	1999	CEC Screen-It I	-	-	-	-	-
2286	1984	Caterpillar Loader	-	-	250,000	-	-
2287	1980	Caterpillar Compactor	140,000	-	-	-	-
2288	1998	Caterpillar Loader	-	-	-	-	-
2289	1992	Kobelco Excavator (Used)	-	150,000	-	-	-
-	1995	Hotsy Steam Cleaner	-	-	-	-	-
-	1987	Dearborn Air Compressor	-	-	-	10,000	-
-		Fairbanks Morris Scale	-	-	-	-	-
2240	1995	JCB Backhoe	-	-	-	-	-
2260	1989	Mack 10-wheel Dump (Used)	-	-	-	-	-
2264	1988	International 10-wheel Dump (Auctioned)	-	-	-	-	-
2265	1991	Ford 10-wheel Dump	-	-	-	-	-
2610	2002	Ford F-450 Dump Truck	-	-	-	-	-
20	1989	GMC Two-ton Flat Bed Truck (Auctioned)	-	-	-	-	-
-	Future	Compost Grinder \$220,000	-	-	-	-	-
YEARLY TOTALS			140,000	150,000	300,000	10,000	30,000

**APPENDIX E**  
**CITY HAZARDOUS WASTE**  
**AND RECYCLING PROGRAMS**

## GET RID OF YOUR BAD STUFF FOR FREE

Bountiful will be conducting a **HOUSEHOLD HAZARDOUS WASTE COLLECTION**  
on **SATURDAY, OCTOBER 15TH** from 9:00 a.m. to 4:00 p.m.  
at the City's Maintenance Facility, located at 200 West and 950 South in

*This is a great chance to clean out your house and get rid of harmful chemicals, and a  
the environment. So bring in any of the following:*

Antifreeze	Flea powder	Laundry products	Photographic chemicals
Batteries	Floor waxes/cleaners	Mothballs	Radiator flushes
Car cleansers	Furniture polish	Oven cleaners	Rodent poison
De-greasers	Insecticides	Paints	Silver cleaners
Drain cleaners	Lacquers	Paint thinners	Spot removers

*If you bring it in, we'll take it off your hands FREE, and properly dispose of it -- you'll be  
keeping this material out of the landfill, and you'll be rid of old materials that need to be*

**FOR BOUNTIFUL RESIDENTS ONLY**

# HOUSEHOLD HAZARDOUS WASTE



## HAZARDOUS WASTE IN YOUR HOME

If asked what hazardous chemicals exist around your home, could you identify them? We don't have to look far to find everyday household products that contain hazardous chemicals. We can find them in the form of weed killers, pesticides, paints, paint thinners, used motor oils, antifreeze, spot removers and oven cleaners. Every household has these chemicals under the kitchen sink, stored in the basement or in the garage.

## WHAT IS A HAZARDOUS WASTE?

In order to adequately protect our environment, it is necessary to become familiar with what constitutes a hazardous waste and the alternatives we have, as homeowners, in the proper management of the waste. The Environmental Protection Agency (EPA) considers a substance "hazardous" if it is no longer going to be used for its intended purpose and exhibits any of the following characteristics: It is flammable; it can react with other chemicals giving off toxic gases or becomes explosive; it is corrosive; or if it is toxic to humans and animals.

## DANGERS OF IMPROPER DISPOSAL OF HOUSEHOLD HAZARDOUS WASTE

Apart from the very important concerns of chemicals being properly stored in safe places away from children, is the growing concern of proper disposal. It is obvious we can no longer dispose of these chemicals down sewers, storm drains or place them out for the weekly garbage collection. Such disposal practices only add to the water and landfill pollution problem experienced through improper disposal methods. Additionally, disposal of household hazardous waste, in garbage, can cause harm to sanitation workers and explosions or fires if incompatible chemicals are mixed. A common example of this is the mixing of chlorine and ammonia, giving off a toxic chloramine gas.

## DISPOSAL ALTERNATIVES AVAILABLE TO HOMEOWNERS

Before throwing anything out, read the label and be sure to follow any directions given. If no disposal directions are available, see if you can locate the waste product on the easy reference chart provided in this brochure. There may be chemicals for which no disposal alternatives exist at the present time. If this is the case, contact the Bountiful Streets and Sanitation Department at 298-6175 for instructions on proper storage or for the location of the nearest household hazardous waste drop-off site.

## HOUSEHOLD HAZARDOUS WASTE REDUCTION

To avoid future problems of disposing of hazardous chemicals you should —

1. Before buying a product, read the label making sure it will do what you want.
2. Do not buy more than you need. This will avoid surplus and the need for future disposal.
3. Try to purchase less toxic products or use alternatives to chemicals whenever possible.



# RECOMMENDED DISPOSAL METHODS FOR SMALL QUANTITIES OF HOUSEHOLD HAZARDOUS WASTE

PRODUCT/CHEMICAL	HAZARDOUS INGREDIENTS/HAZARD	DISPOSAL RECOMMENDATIONS		SUBSTITUTES/ALTERNATIVES
		BEST CHOICE	2ND CHOICE	
Aerosol Sprays	Fluorocarbons, Hydrocarbons/ Toxic Flammable	G	J	Use non-aerosol products
Antifreeze (Weak)	Acids/Toxic, Corrosive	A	D	No substitutes
Anti-freeze	Ethylene Glycol/Toxic	B	D	No substitutes/have vehicle professionally serviced/Use recycled anti-freeze
Asbestos	Asbestos Fibers/Carcinogen	A	F	Use non-asbestos products
Ammonia Cleaners	Ammonia, Ethanol/Toxic, Corrosive	G	A	Use vinegar or baking soda
Air Fresheners	Hydrocarbons, Petroleum Products/ Toxic, Flammable	G	A	Use vinegar in open dish, baking soda for refrigerator
Batteries: Mercury bottom type	Mercury, Cadmium/Toxic	E	A	No substitutes/use rechargeable batteries
Batteries: Automotive	Sulfuric Acid, Lead/Toxic, Corrosive	C	B	No substitutes
Bleach: Chlorine	Hydroxides, Hypochlorites/Toxic, Corrosive	G	D	Borax, sunlight
Chlorine (Pool)	Hypochlorites/Toxic	G	D	No substitutes
Detergent Cleaners	Phosphates, Hypochlorites/Toxic, Corrosive	G	D	Soap flakes — avoid phosphates
Disinfectants	Fluorocarbons, Phenols, Hypochlorites/Toxic	G	A	1/2 cup Borax in 1 gallon hot water. Use non-aerosol products
Drain Cleaners	Acids, Hypochlorites, Hydroxides/ Toxic, Corrosive	G	A	1/2 cup baking soda, 1/2 cup salt — hot water, vinegar
Fertilizers	May contain Herbicides/Toxic	G	A	Manure for gardens
Fingernail Polish Remover	Acetone/Toxic, Flammable	G	H or A	No substitutes
Flea-powder, Sprays, Shampoos	Pesticides/Toxic	G	A	No substitutes
Gasoline	Benzene, Toluene, Xylene/Toxic, Flammable	G	A	No substitutes
Glues	Benzene, Toluene/Toxic, Flammable	G	H or A	No substitutes/screws, staples
Herbicides*	2,4,5 TP Silvex, 2,4-D, Glyphosate, Prometon/Toxic	A	G	Keep lawn groomed, hand weed
Medicines	Stimulants, Inhibitors/Toxic	D	A	No substitutes
Metal Polishes	Acids/Toxic, Corrosive	G	E or A	1 tsp. baking soda, 1 qt. hot water and 1 piece aluminum
Motor Oil	Benzene, Heavy Metals/Toxic, Flammable	B	A	No substitutes/have vehicle professionally serviced
Mothballs	Napthalenes, Paradichlorobenzenes/Toxic	G	H or A	Cedar chips, lavender flowers
Oven Cleaner	Hydroxides/Toxic, Corrosive	G	A	Clean oven after every use with baking soda and water
Paint Strippers	Lead, Methylene Chloride, Ethylene, Hydrocarbons/Toxic, Flammable	G	H or A	Use water based paint
Paint Thinners	Toluene, Methylene Chloride, Acetone/ Toxic, Flammable	G	A	No substitutes
Paint Thinners	Toluene, Petroleum Products/Toxic, Flammable	I	H or A	Use water based paint
Pesticides*	Arsenicals, Chlorinated Hydrocarbons, Organophosphates/Toxic	A	G	Soapy water, keeping area clean
Spot Removers	Perchloroethylene, Acids/Toxic, Corrosive	G	A	Immediate cold water, club soda, salt or cornmeal
Syringes	Contaminated Blood or Body Fluids/ Disease Transmitters	K	A	No substitutes
Toilet Bowl Cleaners	Acids, Paradichlorobenzene/Toxic, Corrosive	G	D	Baking soda
Window Cleaner	Methanol/Toxic	G	D	1/2 cup vinegar and 1/2 cup water
Wood Cleaners, Polishes, Waxes	Petroleum Products/Toxic, Flammable	G	E	Lemon oil, beeswax in mineral oil, or lemon in vegetable oil

Explosives — Bountiful Fire Department - 298-6130 Bountiful Police - 295-9435

## DISPOSAL METHODS KEY

- Call local health department for specific instruction or for the location of the nearest household hazardous waste drop-off site.
  - Call the local health department for location of the nearest recycling facility.
  - Return to manufacturer or retailer.
  - Slowly wash down drain with large quantities of water (not septic systems).
  - Wrap in plastic and dispose with other refuse.
  - Wet with water before removal/take to an authorized landfill in double plastic bag.
  - Use entire contents for intended purposes or give to a friend who can use them.
  - Open lid and allow to dry in a well ventilated area before disposing with refuse (this could require spreading on an old board, etc.)
  - Allow solids to settle out and reuse.
  - Discharge contents in plastic bag or box and wrap container in newspaper and dispose of with other refuse.
- Place in coffee can or other puncture-resistant container, tape closed, label, and dispose of with other refuse.

\*If using a lawn care or pesticide company for spray applications, make sure that the company is disposing of their residual waste in a responsible manner. For more information on this matter, please call 534-4588.

The following pesticide ingredients have had their uses banned or limited to certain conditions. The underlined pesticides have been banned. Those remaining have been substantially limited to specific uses requiring special precautions. The U.S. EPA document, "Suspended, Cancelled and Restricted Pesticides," (from which this list was adapted) should be consulted for more specific information. Restricted use pesticides should only be used by certified applicators. Pesticides that have exceeded expiration date may be used but their strength may have deteriorated. In any case, do not over apply.

<u>Aldrin</u>	EDB (ethylene dibromide)	Pronamide
<u>Arsenic Trioxide</u>	Endrin	Satrole
(more than 1.5%)	Goal (oxyfluorfen — containing)	Silvex
BHC	<u>Heptachlor</u>	<u>Sodium arsenite</u>
<u>Bithionol</u>	<u>Kepon</u>	(more than 2.0%)
<u>Chloranil</u>	Undane	<u>Sodium cyanide</u>
<u>Chlordane</u>	Metaldhyde	<u>Sodium Fluoride</u> (more than 40%)
<u>Chlorobenzilate</u>	Mirex	<u>Sodium Fluoroacetate</u>
<u>Copper Arsenate</u>	OMPA	Strobane
<u>DBCP</u>	<u>PCBs</u> (polychlorinated biphenyls)	<u>Strychnine</u>
<u>DDT</u>	PCNB	<u>2,4,5-T</u>
<u>Dieldrin</u>	<u>Phenazine Chloride</u>	<u>Thallium Sulfate</u>
<u>Dimethoate</u>	<u>Polychlorinated Terphenils</u>	<u>TOK</u>
<u>EDBCs</u>		Toxaphene
		<u>Vinyl Chloride</u>

NOTE: This is only a partial listing of the pesticides identified in the EPA document, "Suspended, Cancelled and Restricted Pesticides."

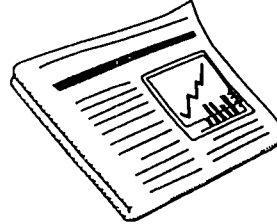


# **BOUNTIFUL RECYCLING CENTER**

950 South 200 West  
Bountiful, Utah

## **ITEMS ACCEPTED FOR RECYCLING**

NEWS PAPER



ALUMINUM CANS

GLASS FOOD CONTAINERS

TIN FOOD CANS

PLASTIC 2 LITER POP BOTTLES (PETE)



PLASTIC MILK JUGS (HDPE)

POLYSTYRENE FOOD TRAYS

(egg cartons, hamburger boxes)

### **PLEASE REMEMBER TO:**

Rinse out all milk jugs, glass bottles and pop bottles and remove the caps

Rinse out all tin cans

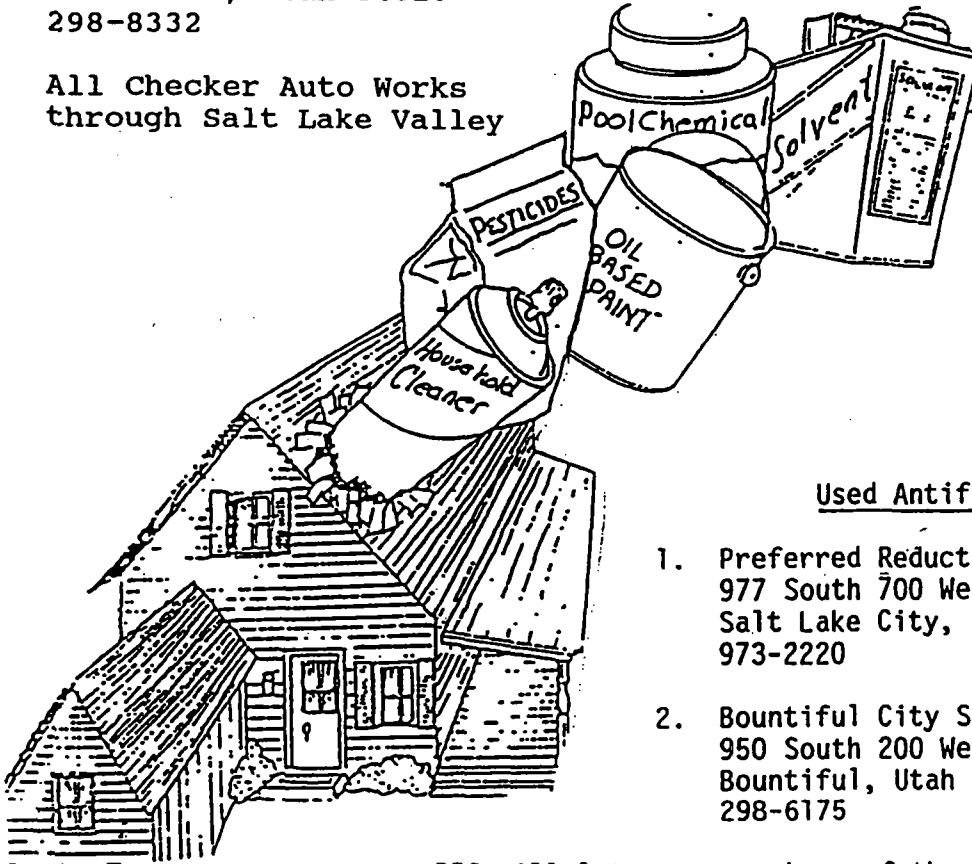
Smash your pop bottles, milk jugs and aluminum cans

Never put items on the ground, if the bins are full, please return later

## BOUNTIFUL RECYCLE DROP OFF SITES

### USED OIL

1. Bountiful City Shops  
950 South 200 West  
Bountiful, Utah 84010  
298-6175
2. Checker Auto Works  
52 West 500 South  
Bountiful, Utah 84010  
298-8332
3. All Checker Auto Works  
through Salt Lake Valley
4. Sears Auto Service  
Center  
754 South State St.  
Salt Lake City, Utah  
321-4161



### Used Antifreeze

1. Preferred Reduction Services Inc. (PRS)  
977 South 700 West  
Salt Lake City, Utah  
973-2220
2. Bountiful City Shops  
950 South 200 West  
Bountiful, Utah 84010  
298-6175

PRS will let a person know of the service station closest to them which will accept used antifreeze. 973-2220

### Old Latex and Oil Based Paint

Call Bob Bruhn at 298-6175, Bountiful City Street and Sanitation Department, for the paint collection days that will be held in Bountiful.

### Old Car Batteries

All stores that sell car batteries are required under a new law which was passed during the 1991 legislative session to accept old car batteries. If a person has any problems with bringing a car battery back to the store where it was purchased, please have them call Bob Bruhn at 298-6175. Stores such as K-Mart have always taken car batteries.

---

## **BENEFITS OF USING COMPOST**

Compost is a tremendously valuable soil amendment providing the following benefits:

1. *Creates a superior soil amendment making the soil easier to cultivate*
2. *Holds water and nutrients where plants need them*
3. *Improves the drainage and aeration of clayey soils.*
4. *Increases water retention and nutrient holding capability of sandy soils.*
5. *Reduces adverse effects of excessive acidity and over fertilization by increasing the buffering capacity of soil.*
6. *Increases the biological activity of earthworms and other beneficial soil organisms.*
7. *Allows soil to hold more plant nutrients for longer periods of time.*
8. *Is an especially good supplier of micro-nutrients that are needed in small quantities and are sometimes overlooked by gardeners, such as boron, cobalt, copper, iodine, iron, manganese, molybdenum and zinc. In addition, the nutrients in compost are released at a slow rate.*
9. *Compost acts as an inoculant to your soil, adding microorganisms and larger creatures such as earthworms which are nature's soil builders.*

---

## **Compost Applications and Uses**

1. *To establish new lawns and athletic fields apply at approximately 3000 to 6000 pounds per 1000 sq. ft. of ground (1 to 2 inches) and incorporate into the top 4-6 inches of soil.*
2. *To top dress established lawns apply at approximately 400 to 800 pounds per 1000 sq. ft. of ground (1/8 to 1/4 inch) and broadcast uniformly on grass surface.*
3. *For shrub and tree maintenance apply at approximately 9000 to 15,000 pounds per 1000 sq. ft. of ground (3 to 5 inches) and work it into the soil or leave on top as a mulch.*
4. *To make container or potting mixes use not more than 1/3 by volume and blend with perlite, vermiculite and sand bark.*

## **CONTACTS**

For additional information, or to provide comments or ask questions, contact the following:

Bountiful Sanitary Landfill

Jim Wood  
Landfill Foreman  
(801) 298-6169

Mark W. Franc, P.E.  
Environmental Engineer  
Bountiful City  
(801) 298-6125

Gre  
Co

Boun

Bount  
13

---

## INTRODUCTION

Yard Waste is the largest individual component of municipal solid waste. It represents approximately 15 percent of the total waste stream. Eliminating these materials from the landfill disposal process can add as much as 10 years to the life of the Bountiful Sanitary Landfill.

In order to keep as much yard waste as possible out of the landfill, the City of Bountiful has undertaken a project to compost yard waste (tree trimmings, grass clippings, leaves, and other landscaping residues).

Nitrogen fertilizer is added to the yard waste during the composting process. This improves the quality of the final organic mulch product, and also aids in speeding up the composting process.

The final product, a rich, fertile, organic mulch is then screened and sold to the public for use as a soil amendment in vegetable gardens and flower beds.



---

## PROJECT BENEFITS

Four major benefits are expected to be achieved from this project:

1. *Reduce the amount of material going into the Bountiful Sanitary Landfill, thereby extending its life.*
2. *Provide for the recycling of green waste produced by Bountiful City residents.*
3. *Provide local residents with a valuable organic soil amendment for lawns, gardens, and other landscaping needs.*
4. *Minimize long-term costs for solid waste disposal.*

---

## COMPOSTING

Residents and... is free from tra... material in a s... material is ther... this purpose... into large wind...

The windrow... moisture. They... conditions, an... maintain mois... naturally produ... quickly reach... 50° C (131° F... weed seeds or...

The windrow... approximately... time for the d... organic mulch... the forest floo... materials fall t...

The mature co... and other woo... three-quarters... returned to a... decompose.

The screened... toxic substanc... available for s...

**APPENDIX F**  
**SOIL AND GROUND WATER INFORMATION**

ELEVATION  
(FEET)

4220

4210

4200

4190

4180

JMM-8/P-6  
(PROJECTED  
400' SO.)

JMM-7/P-7

JMM-8/P-8

NORTH DIKE

RED CLAY MARKER BED

0 500

HORIZONTAL SCALE  
50X VERTICAL EX  
SEE FIG 2-1 FOR LO

LEGEND



SHALLOW GROUND-WATER SURFACE  
(WATER TABLE) ON 6-15-88



CONTACT BETWEEN LITHOLOGIC UNITS  
(QUERIED WHERE UNCERTAIN)



SCREENED ZONE IN ADJACENT  
MONITORING WELL



CLAYEY SOILS



SILTY SOILS

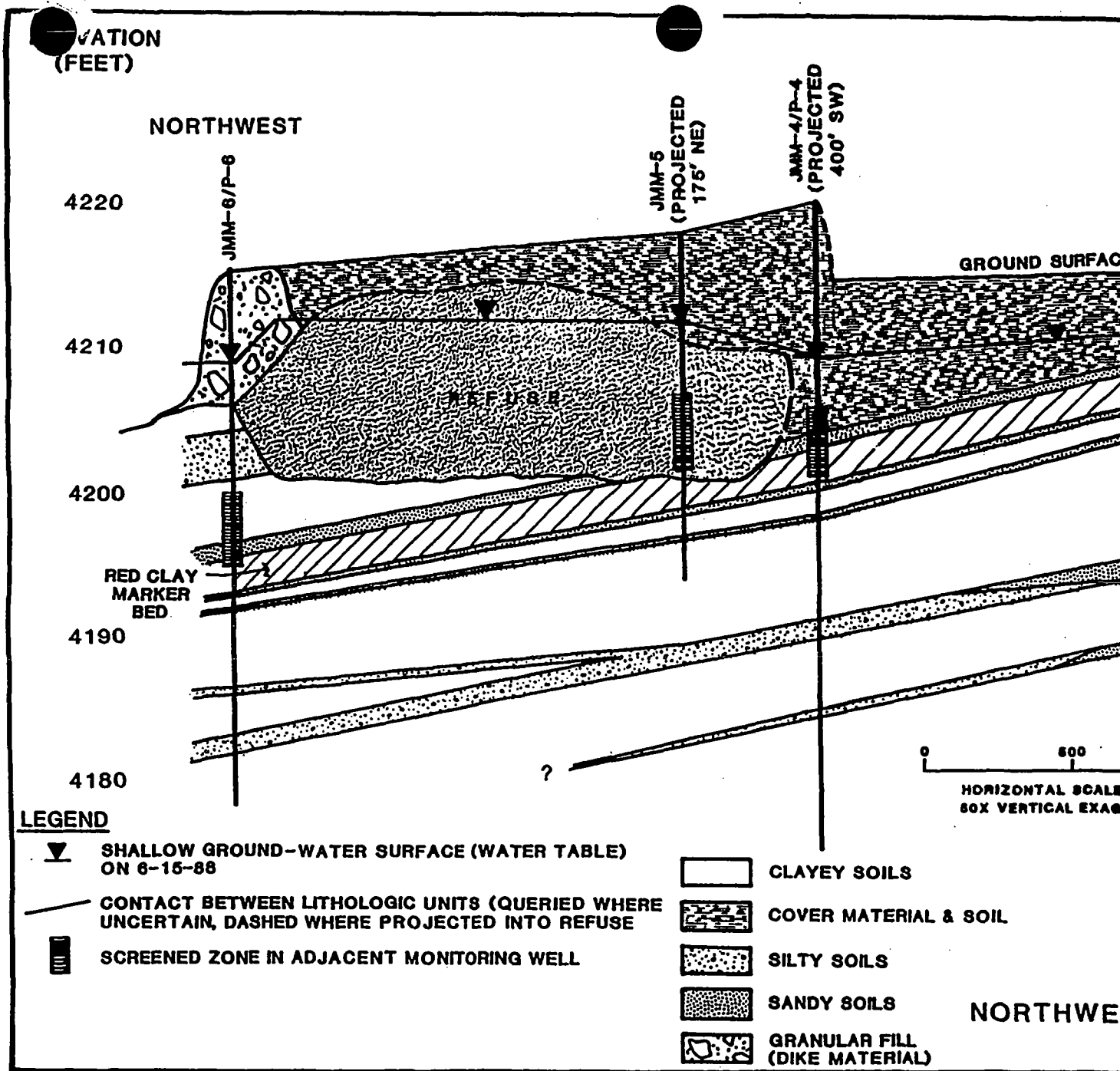


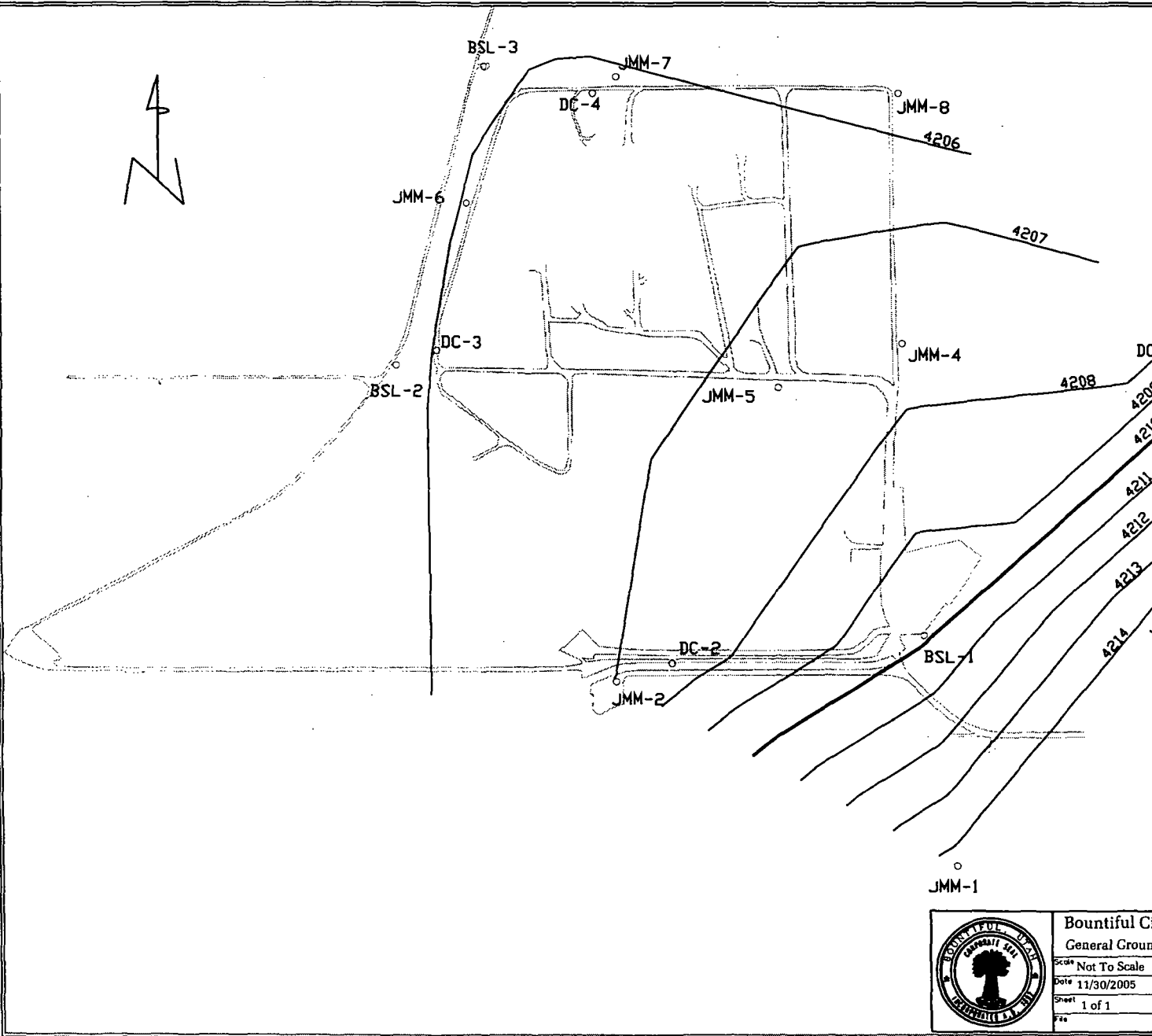
SANDY SOILS



GRANULAR FILL  
(DIK MATERIAL)

NORTH  
WE





Bountiful City  
General Ground  
Scale: Not To Scale  
Date: 11/30/2005  
Sheet: 1 of 1  
Fee:



TABLE 1  
BOUNTIFUL SANITARY LANDFILL  
SUMMARY OF WATER LEVEL MEASUREMENTS

Date/Well	DC-1	DC-2	DC-3	DC-4	JMM-1	JMM-2	JMM-3	JMM-4	JMM-5	JMM-6	JMM-7	JMM-8	BSL-1	BSL-2	BSL-3	P-1	P-2	P-3
8/26/92	7.68	5.62	12.56	8.26	8.16	7.46	5.88	14.02	6.48	11.1	10.88	13.28	NM	NM	NM	2.32	NM	1.36
9/29/92	7.76	5.49	12.36	8.18	7.9	7.32	3.54	13.78	6.58	11.98	10.24	13.4	NM	NM	NM	2.34	NM	1.46
10/23/92	7.84	5.68	12	8.38	8.84	7.48	5.68	13.42	6.84	11.99	10.24	12.76	NM	NM	NM	2.26	NM	1.54
1/20/93	4.94	5.09	10.12	7.85	3.54	6.13	2.45	12.37	NM	9.96	9.59	9.57	NM	NM	NM	0.9	NM	NM
2/20/93	1.06	4.18	9.34	7.3	2.46	5.52	2	11.94	5.42	9.2	9.1	9.34	NM	NM	NM	OTC	NM	OTC
3/26/93	1.44	4.5	10.04	6.72	3.44	6.04	2.89	12.36	5.62	9.38	9.22	9.82	NM	NM	NM	OTC	NM	OTC
4/21/93	1.72	4.56	10.29	7.02	3.68	6.14	3.1	12.46	6.04	9.76	9.6	9.72	NM	NM	NM	0.5	NM	OTC
5/20/93	2.22	4.56	9.54	6.54	4.28	5.86	4.04	12.48	5.64	8.44	8.34	9.34	NM	NM	NM	0.6	NM	OTC
6/16/93	3.4	4.54	10.4	6.74	4.86	6.5	5.12	12.52	5.74	9.16	9.06	10.06	NM	NM	NM	0.74	NM	0.45
7/21/93	5.38	5.1	13.64	7.24	6.52	7	4.54	13.52	6.18	9.72	9.56	12	NM	NM	NM	1.4	NM	0.98
8/18/93	6.24	5.34	11.62	7.4	7.18	6.92	6.58	13.44	7.34	9.76	9.56	12.02	NM	NM	NM	1.64	NM	0.16
9/15/93	7.28	5.58	12	7.64	7.28	7.12	8.22	13.96	6.54	10.04	9.8	12.54	NM	NM	NM	1.92	NM	1.64
10/26/93	6.88	5.68	11.08	7.9	5.84	6.34	7.14	12.72	6.84	10.08	9.8	11.4	NM	NM	NM	1.62	NM	0.82
11/17/93	6.72	5.6	11.24	7.98	5.82	6.62	6.76	12.98	6.72	10.64	9.82	11.54	NM	NM	NM	1.44	NM	1.1
1/1/94	5.32	5.32	10.84	8.22	4.68	6.1	5.12	12.46	7.1	9.8	10.74	9.72	NM	NM	NM	1.71	NM	3.12
2/17/94	3.1	5.04	10.52	7.88	3.52	6.02	3.9	12.35	6.96	9.98	9.8	9.6	NM	NM	NM	0.5	NM	1.04
3/16/94	1.68	5.16	10.18	8.06	3.48	5.92	3.14	12.46	6.64	10.02	9.82	9.7	NM	NM	NM	0.45	NM	0.3
4/21/94	2.06	4.74	10.54	8.02	3.96	6.08	3.66	12.5	6.9	9.7	9.6	10.16	NM	NM	NM	0.06	NM	OTC
5/25/94	3.78	5.1	11	8.04	4.74	6.58	5.1	12.7	7	9.92	9.6	11.38	NM	NM	NM	0.74	NM	0.25
6/21/94	5.28	4.76	11.76	8.4	5.86	6.88	7.02	13.6	7.3	10.44	9.84	12.2	NM	NM	NM	1.24	NM	0.92
7/13/94	6.48	5.32	12.3	8.58	6.18	6.86	8.74	14	7.54	10.88	10.1	12.44	NM	NM	NM	1.38	NM	1.4
7/29/94	NM	5.57	12.92	NM	6.89	6.99	NM	14.33	NM	12.07	10.32	12.7	NM	NM	NM	NM	NM	NM
8/17/94	7.72	5.72	12.7	9.14	6.12	6.98	6.12	14.48	7.86	10.46	11.26	12.98	NM	NM	NM	1.62	NM	1.46
9/21/94	8.3	5.94	12.58	9.9	5.84	7	8.02	14.76	8.12	10.86	12.12	13.48	NM	NM	NM	1.76	NM	1.74
1/5/95	NM	5.14	10.27	NM	3.71	5.91	NM	12.36	NM	9.68	9.55	9.78	NM	NM	NM	NM	NM	NM
1/9/96	6.18	5.25	10.29	8.36	4.18	5.83	4.47	12.51	6.73	9.3	9.39	10.52	NM	NM	NM	NM	NM	NM
6/5/96	3.47	4.15	10.58	8.14	3.74	6.14	5.26	12.54	5.7	9.5	9.39	10.52	NM	NM	NM	NM	NM	3.78
9/23/96	7.78	5.33	10.48	8.6	5.15	6.09	3.49	14.35	6.95	9.45	9.44	12.57	5.63	6.01	8.2	NM	NM	3.75
12/10/96	3.42	4.27	NM	NM	2.58	4.76	2.23	12.21	NM	NM	9.3	9.7	5.11	4.96	8.11	NM	NM	3.75

TABLE 1 continued  
BOUNTIFUL SANITARY LANDFILL  
SUMMARY OF WATER LEVEL MEASUREMENTS

Date/Well	DC-1	DC-2	DC-3	DC-4	JMM-1	JMM-2	JMM-3	JMM-4	JMM-5	JMM-6	JMM-7	JMM-8	BSL-1	BSL-2	BSL-3	P-1	P-2	P-3	P-4
3/17/97	NM	NM	10.54	9.12	3.87	6.02	3.29	12.6	6.08	9.98	9.97	10.16	5.71	5.82	8.62	NM	NM	4.02	
6/19/97	NM	4.3	10.64	8.47	3.45	5.76	3.93	12.52	5.61	9.53	9.52	10.92	5.42	5.91	8.47	NM	NM	3.81	
9/12/97	4	5.33	11.93	8.85	4.39	6.34	6.58	14.72	6.46	9.8	9.82	12.76	7.82	6.79	8.56	NM	NM	4.02	
12/10/97	3.49	5.23	10.38	8.93	4.21	5.42	5.47	14.01	7.33	9.31	9.39	10.89	5.58	5.41	8.05	NM	NM	3.74	
3/12/98	0.58	3.58	9.23	7.26	2.09	5.15	2.28	11.66	5.8	9.27	9.2	9.39	5.13	4.59	7.98	NM	NM	3.58	
6/15/98	2.09	4.2	10.08	8.2	3.66	5.52	4.59	12.48	5.52	9.4	9.35	9.95	5.11	5.5	8.16	NM	NM	4.03	
9/16/98	6.1	4.76	11.49	8.31	5.21	5.91	6.84	13.96	5.98	9.65	9.56	12.53	5.56	6.45	8.4	NM	NM	3.75	
12/16/98	6.58	5.16	10.51	8.77	4.58	5.75	4.54	13.32	6.96	9.53	9.57	11.04	5.67	5.66	8.31	NM	NM	3.81	
3/25/99	2.95	4.81	10.54	8.8	3.8	5.83	3.86	12.86	6.03	9.76	9.81	10.53	5.52	5.82	8.55	NM	NM	3.69	
6/24/99	4.03	2.3	11.1	8.64	3.61	5.86	4.86	12.16	5.28	10	9.79	11.7	5.62	6.37	8.63	NM	NM	3.22	
9/23/99	7.22	4.64	11.6	8.9	4.2	6.55	8.06	10.21	6.35	9.7	9.73	12.34	5.75	6.6	8.51	NM	NM	3.66	
12/17/99	6.16	5.21	10.76	9.06	3.86	5.7	6.71	13.75	7.01	9.77	9.84	11.62	5.66	5.93	8.58	NM	NM	3.66	
4/1/00	2.61	4.88	10.15	8.91	3.71	5.71	3.43	12.36	6.17	9.55	9.61	10.08	5.53	5.47	8.35	NM	NM	3.78	
6/22/00	4.86	5.37	11.22	8.71	5.03	6.86	7.98	13.81	6.07	9.5	9.55	11.89	5.95	6.2	8.29	NM	NM	3.98	
9/14/00	8.21	5.72	10.78	8.53	6.61	6.58	6.73	14.85	6.68	9.37	9.41	13.55	5.85	5.81	8.17	NM	NM	3.7	
12/13/00	7.02	5.35	10.09	8.72	4.79	5.96	3.47	13.18	6.49	9.55	9.56	10.09	5.61	5.45	8.32	NM	NM	3.74	
3/22/01	1.28	4.28	9.86	7.84	3.31	5.79	2.3	11.97	5.65	9.45	9.51	9.69	5.38	5.38	8.33	NM	NM	3.47	
6/28/01	4.57	4.7	11.46	8.91	6.01	6.59	2.96	13.74	5.71	9.69	9.64	12.09	5.87	7.05	8.41	NM	NM	3.19	
9/14/01	7.85	5.56	11.66	8.77	7.42	6.72	4.39	14.92	6.42	9.68	9.62	12.99	5.86	6.51	8.35	NM	NM	3.52	
12/5/01	3.3	4.54	9.5	8.57	4.78	5.62	2.14	12.62	6.15	9.11	9.37	6.75	5.36	5	7.97	NM	NM	3.59	
3/21/02	1.27	4.7	9.95	8.93	2.98	5.88	2.18	12.4	5.94	9.6	9.61	9.69	8.49	4.7	8.35	NM	NM	NM	
6/20/02	4.38	4.52	11.33	9	5.14	6.66	3.31	13.36	5.54	10.01	9.76	11.96	5.04	6.4	8.54	NM	NM	NM	
9/26/02	7.57	5.65	11.04	8.81	7.86	6.88	4.08	14	6.47	9.45	9.48	11.69	5.84	6.1	8.22	NM	NM	NM	
12/4/02	7.46	5.7	10.81	9.05	7.1	6.72	4.95	14	7.04	9.61	9.65	11.35	5.82	5.92	8.41	NM	NM	NM	
3/27/03	4.24	5.08	10.15	9.08	3.85	5.7	2.93	13.21	7.03	9.48	9.59	10.28	5.6	5.39	8.303	NM	NM	NM	
6/18/03	5.73	5.66	11.36	9.06	5.55	6.8	3.44	13.61	6.54	9.7	9.75	12.16	5.92	6.38	8.43	NM	NM	NM	
9/24/03	8.38	5.17	11.13	8.89	Dry	7.02	3.56	14.2	7.13	9.38	9.49	11.5	4.94	6.14	8.17	NM	NM	NM	
12/12/03	7.03	5.45	10.26	9.12	Dry	6.22	3.81	13.7	7.07	9.16	9.86	10.32	5.79	5.81	8.65	NM	NM	NM	
3/12/2004	1.07	3.73	9.65	8.44	2.83	5.49	2.2	10.24	6.23	9.16	9.28	9.59	5.29	5.05	8.8	NM	NM	NM	
6/18/2004	4.18	4.5	10.86	8.79	6.76	6.44	4.15	11.46	6.35	9.47	9.65	11.63	5.7	6.42	8.31	NM	NM	NM	
9/30/2004	7.7	6.02	11.16	9.64	Dry	7.02	4.37	13.74	NM	9.54	10.36	13.51	6	6.04	8.62	NM	NM	NM	
12/10/2004	5.59	5.1	9.62	9.12	6.32	5.6	2.16	12.44	NM	9.3	9.7	9.82	5.42	4.94	8.24	NM	NM	NM	
3/18/2005	2.3	4.45	10.24	8.8	4.31	6.03	3.14	11	5.34	9.33	9.56	10.46	5.6	5.7	8.21	NM	NM	NM	
6/24/2005	3	3.98	10.51	8.58	5.45	5.56	4.28	10.68	5.3	9.3	9.54	10.95	5.56	5.84	8.2	NM	NM	NM	
9/19/05	6.64	5.52	11.36	9	Dry	6.58	4.7	12.82	5.4	9.6	9.74	12.02	5.03	6.35	8.41	NM	NM	NM	

All measurements are from the top of PVC casing, measured in feet

NM=Not Measured

OTC=Over the Casing

Pages 1 through 26 of Table 2 have been removed by the applicant at the request of the Division because groundwater in the wells from which the sampling data was obtained is not considered representative of groundwater conditions outside the landfill.

TABLE 2

**CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 27 of 38)**

Well Number	Date Sampled	Acetone (µg/l)	Acrolein (µg/l)	Acrylonitrile (µg/l)	Benzene (µg/l)	Bromochloromethane (µg/l)	Bromochloromethane (µg/l)	Bromoform (µg/l)	Bromomethane (µg/l)	2-Butanone (µg/l) (methyl ethyl ketone; MEK)	Carbon disulfide (µg/l)	Carbon tetrachloride (µg/l)	Chlorobenzene (µg/l)	Chloroethane (µg/l)	2-Chloroethyl vinyl ether (µg/l)	Chloroform (µg/l)	Chloromethane (µg/l)	Dibromomethane (µg/l)	Dibromochloromethane (µg/l)	Dibromochloropropane (1,2-Dibromo-3- chloropropane) (DBCP) (µg/l)	1,2-Dichlorobenzene (µg/l)	1,3-Dichlorobenzene (µg/l)
	Regulatory Standards			5							5											
BSL-1	26-Sep-96	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-1	11-Dec-96	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-1	18-Mar-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-1	19-Jun-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.02	<2.0	NA
BSL-1	15-Sep-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NA
BSL-1	30-Dec-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-1	13-Mar-98	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-1	16-Jun-98	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-1	17-Sep-98	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-1	17-Dec-98	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-1	26-Mar-99	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-1	25-Jun-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-1	23-Sep-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-1	17-Dec-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-1	17-Dec-99 <sup>(b)</sup>	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-1	28-Mar-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.18	<2.0	NA
BSL-1	28-Mar-00 <sup>(b)</sup>	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.18	<2.0	NA
BSL-1	22-Jun-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA

NA Not analyzed  
µg/l Micrograms per liter  
T Trace  
mg/l Milligrams per liter

- (a) Duplicate sample, originally designated as BSL-4  
(b) Duplicate sample, originally designated as JMM-9  
(c) Duplicate sample, originally designated as 1JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards  
Shaded analytes are specified in the Utah R315-308-4 analyte list

TABLE 2

**CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 28 of 38)**

Well Number	Date Sampled	Regulatory Standards			1,3-Dichloropropane (µg/l)	700										100					5					1000					200					5				
		trans-1,2-Dichloroethene (µg/l)	cis-1,2-Dichloroethene (µg/l)	1,2-Dichloropropane (µg/l)		cis-1,3-Dichloropropene (µg/l)	trans-1,3-Dichloropropene (µg/l)	Ethylbenzene (µg/l)	Ethylene Dibromide (EDB)(µg/l)	Dibromoethane(µg/l)	2-Hexanone (µg/l)	Iodomethane (µg/l)	Methylene chloride (µg/l)	4-Methyl-2-pentanone (µg/l)	Styrene (µg/l)	1,1,1,2-Tetrachloroethane (µg/l)	1,1,2,2-Tetrachloroethane (µg/l)	Tetrachloroethene (PCE)(µg/l)	Toluene (µg/l)	1,1,1-Trichloroethane (TCA)(µg/l)	1,1,2-Trichloroethane (µg/l)	Trichloroethene (TCE)(µg/l)	Trichlorofluoromethane (Fluorotrichloromethane) (µg/l)																	
BSL-1	26-Sep-96	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	11-Dec-96	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	18-Mar-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	19-Jun-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.02	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	15-Sep-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	30-Dec-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	13-Mar-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	16-Jun-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	17-Sep-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	17-Dec-98	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	26-Mar-99	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	0.025	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	25-Jun-99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	23-Sep-99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	17-Dec-99	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	17-Dec-99 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	28-Mar-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.18	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	28-Mar-00 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.18	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	22-Jun-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

NA Not analyzed  
µg/l Micrograms per liter  
T Trace  
mg/l Milligrams per liter

- (a) Duplicate sample, originally designated as BSL-4  
(b) Duplicate sample, originally designated as JMM-9  
(c) Duplicate sample, originally designated as 1JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards  
Shaded analytes are specified in the Utah R315-308-4 analyte list

TABLE 2

**CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 29 of 38)**

Well Number	Date Sampled	Regulatory Standards																					
		Acetone (µg/l)	Acrolein (µg/l)	Acrylonitrile (µg/l)	Benzene (µg/l)	Bromodichloromethane (µg/l)	Bromochloromethane (µg/l)	Bromoform (µg/l)	Bromomethane (µg/l)	2-Butanone (µg/l) (methyl ethyl ketone; MEK)	Carbon disulfide (µg/l)	Carbon tetrachloride (µg/l)	Chlorobenzene (µg/l)	Chloroethane (µg/l)	2-Chloroethyl vinyl ether (µg/l)	Chloroform (µg/l)	Chloromethane (µg/l)	Dibromomethane (µg/l)	Dibromochloromethane (µg/l)	Dibromochloropropane (1,2-Dibromo-3- chloropropane) (DBCP) (µg/l)	1,2-Dichlorobenzene (µg/l)	1,3-Dichlorobenzene (µg/l)	
		5																					
BSL-1	22-Jun-00 <sup>(b)</sup>	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	15-Sep-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	15-Sep-00 <sup>(b)</sup>	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	14-Dec-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	14-Dec-00 <sup>(b)</sup>	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	22-Mar-01	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	22-Mar-01 <sup>(b)</sup>	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	14-Sep-01	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	14-Sep-01 <sup>(b)</sup>	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	21-Mar-02	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	26-Sep-02	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	27-Mar-03	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	24-Sep-03	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	12-Mar-04	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	
BSL-1	30-Sep-04	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA	

NA Not analyzed  
 µg/l Micrograms per liter  
 T Trace  
 mg/l Milligrams per liter

- (a) Duplicate sample, originally designated as BSL-4  
 (b) Duplicate sample, originally designated as JMM-9  
 (c) Duplicate sample, originally designated as IJMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards  
 Shaded analytes are specified in the Utah R315-308-4 analyte list

TABLE 2

**CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 30 of 38)**

Well Number	Date Sampled	Regulatory Standards			trans-1,2-Dichloroethene (µg/l)	cis-1,2-Dichloroethene (µg/l)	1,2-Dichloropropane (µg/l)	1,3-Dichloropropane (µg/l)	1,1,1-Trichloroethene (µg/l)	trans-1,3-Dichloropropene (µg/l)	Ethylbenzene (µg/l)	Ethylene Dichloride (EDB)(µg/l)	Dibromomethane (µg/l)	2-Hexanone (µg/l)	Iodomethane (µg/l)	Methylene chloride (µg/l)	4-Methyl-2-pentanone (µg/l)	Styrene (mg/l)	1,1,1,2-Tetrachloroethane (µg/l)	1,1,2,2-Tetrachloroethane (µg/l)	Tetrachloroethene (PCE)(µg/l)	Toluene (µg/l)	1,1,1-Trichloroethane (TCA)(µg/l)	1,1,2-Trichloroethane (µg/l)	Trichloroethene (TCE)(µg/l)	Trichlorofluoromethane (Fluorotrichloromethane) (Freon 11)(µg/l)
		100	70	5							700							100		5	1000	200		5		
BSL-1	22-Jun-00 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	15-Sep-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	15-Sep-00 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	14-Dec-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	14-Dec-00 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	22-Mar-01	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.050	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	22-Mar-01 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.050	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	14-Sep-01	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	14-Sep-01 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	21-Mar-02	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	21-Mar-02	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	27-Mar-03	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	24-Sep-03	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	12-Mar-04	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-1	30-Sep-04	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

NA Not analyzed  
µg/l Micrograms per liter  
T Trace  
mg/l Milligrams per liter

- (a) Duplicate sample, originally designated as BSL-4  
(b) Duplicate sample, originally designated as JMM-9  
(c) Duplicate sample, originally designated as JJMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards  
Shaded analytes are specified in the Utah R315-308-4 analyte list

TABLE 2

**CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 31 of 38)**

Well Number	Date Sampled	Acetone (µg/l)	Acrolein (µg/l)	Acrylonitrile (µg/l)	Benzene (µg/l)	Bromodichloromethane (µg/l)	Bromochloromethane (µg/l)	Bromoform (µg/l)	Bromomethane (µg/l)	2-Butanone (µg/l) (methyl ethyl ketone; MEK)	Carbon disulfide (µg/l)	Carbon tetrachloride (µg/l)	Chlorobenzene (µg/l)	Chloroethane (µg/l)	2-Chloroethyl vinyl ether (µg/l)	Chloroform (µg/l)	Chloromethane (µg/l)	Dibromomethane (µg/l)	Dibromochloromethane (µg/l)	Dibromodichloromethane (1,2-Dibromo-3- chloropropane) (DBCP) (µg/l)	1,2-Dichlorobenzene (µg/l)	1,3-Dichlorobenzene (µg/l)
	Regulatory Standards				5					5												
BSL-2	23-Sep-96	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	10-Dec-96	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	17-Mar-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	19-Jun-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.02	<2.0	NA
BSL-2	20-Jun-97 <sup>(a)</sup>	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.02	<2.0	NA
BSL-2	15-Sep-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NA
BSL-2	30-Dec-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	13-Mar-98	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	16-Jun-98	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	17-Sep-98	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-2	17-Dec-98	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-2	26-Mar-99	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	25-Jun-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-2	25-Jun-99 <sup>(b)</sup>	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-2	23-Sep-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-2	23-Sep-99 <sup>(b)</sup>	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-2	17-Dec-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	28-Mar-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.18	<2.0	NA

NA Not analyzed

µg/l Micrograms per liter

T Trace

mg/l Milligrams per liter

(a) Duplicate sample, originally designated as BSL-4

(b) Duplicate sample, originally designated as JMM-9

(c) Duplicate sample, originally designated as IJMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards  
Shaded analytes are specified in the Utah R315-308-4 analyte list



TABLE 2

**CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 32 of 38)**

Well Number	Date Sampled	Regulatory Standards			trans-1,2-Dichloroethene (µg/l)	cis-1,2-Dichloroethene (µg/l)	1,1,2-Trichloroethane (µg/l)	1,3-Dichloropropane (µg/l)	cis-1,3-Dichloropropene (µg/l)	trans-1,3-Dichloropropene (µg/l)	Ethylbenzene (µg/l)	Ethylene Dibromide (EDB)(12-Dibromoethane)(µg/l)	2-Hexanone (µg/l)	Iodoethane (µg/l)	Methylene chloride (µg/l)	4-Methyl-2-pentanone (µg/l)	Styrene (mg/l)	1,1,1,2-Tetrachloroethane (µg/l)	1,1,2,2-Tetrachloroethane (µg/l)	Tetrachloroethene (PCE)(µg/l)	Toluene (µg/l)	1,1,1-Trichloroethane (TCA)(µg/l)	1,1,2-Trichloroethane (µg/l)	Trichloroethene (TCE)(µg/l)	Trichlorofluoromethane (Fluorotrichloromethane) (Freon 11)(µg/l)
		100	70	5							700						100		5	1000	200		5		
BSL-2	23-Sep-96	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	10-Dec-96	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	17-Mar-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	19-Jun-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.02	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	20-Jun-97 <sup>(a)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.02	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	15-Sep-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	30-Dec-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	13-Mar-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	16-Jun-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	17-Sep-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<2.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	17-Dec-98	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	26-Mar-99	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	25-Jun-99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	5.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	25-Jun-99 <sup>(b)</sup>	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	4.1	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	23-Sep-99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	23-Sep-99 <sup>(b)</sup>	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	17-Dec-99	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	28-Mar-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.18	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

NA Not analyzed  
µg/l Micrograms per liter  
T Trace  
mg/l Milligrams per liter

- (a) Duplicate sample, originally designated as BSL-4  
(b) Duplicate sample, originally designated as JMM-9  
(c) Duplicate sample, originally designated as JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards  
Shaded analytes are specified in the Utah R315-308-4 analyte list

TABLE 2

**CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 33 of 38)**

Well Number	Date Sampled	Regulatory Standards																				
		Acetone (µg/l)	Acrolein (µg/l)	Acrylonitrile (µg/l)	Benzene (µg/l)	Bromodichloromethane (µg/l)	Bromochloromethane (µg/l)	Bromoform (µg/l)	Bromomethane (µg/l)	2-Butanone (µg/l) (methyl ethyl ketone:MEK)	Carbon disulfide (µg/l)	Carbon tetrachloride (µg/l)	Chlorobenzene (µg/l)	Chloroethane (µg/l)	Chloroform (µg/l)	2-Chloroethyl vinyl ether (µg/l)	Chloromethane (µg/l)	Dibromomethane (µg/l)	Dibromochloromethane (µg/l)	Dibromochloropropane (1,2-Dibromo-3- chloropropane)(DBCP)(µg/l)	(1,2-Dichlorobenzene (µg/l)	1,3-Dichlorobenzene (µg/l)
BSL-2	22-Jun-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	15-Sep-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	14-Dec-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	22-Mar-01	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	14-Sep-01	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	21-Mar-02	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	26-Sep-02	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	27-Mar-03	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	24-Sep-03	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	24-Sep-03 <sup>(b)</sup>	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	12-Mar-04	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-2	30-Sep-04	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA

NA Not analyzed  
µg/l Micrograms per liter  
T Trace  
mg/l Milligrams per liter

- (a) Duplicate sample, originally designated as BSL-4  
(b) Duplicate sample, originally designated as JMM-9  
(c) Duplicate sample, originally designated I-JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards  
Shaded analytes are specified in the Utah R315-308-4 analyte list

TABLE 2

**CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 34 of 38)**

Well Number	Date Sampled	Regulatory Standards																					
		trans-1,2-Dichloroethene (µg/l)	cis-1,2-Dichloroethene (µg/l)	1,2-Dichloropropane (µg/l)	1,3-Dichloropropane (µg/l)	cis-1,5-Dichloropropene (µg/l)	trans-1,5-Dichloropropene (µg/l)	Ethylbenzene (µg/l)	Ethylene Dibromide (EDB) (µg/l)	2,4-Dibromomethane (µg/l)	2-Hexanone (µg/l)	Iodomethane (µg/l)	Methylene chloride (µg/l)	4-Methyl-2-pentanone (µg/l)	Styrene (mg/l)	1,1,1,2-Tetrachloroethane (µg/l)	1,1,2,2-Tetrachloroethane (µg/l)	Tetrachloroethene (PCE) (µg/l)	Toluene (µg/l)	1,1,1-Trichloroethane (TCA) (µg/l)	1,1,2-Trichloroethane (µg/l)	Trichloroethene (TCE) (µg/l)	Trichlorofluoromethane (fluorotrichloromethane) (Freon II) (µg/l)
		100	70	5				700							100		5	1000	200		5		
BSL-2	22-Jun-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	15-Sep-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	14-Dec-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	22-Mar-01	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.050	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	14-Sep-01	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	21-Mar-02	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	26-Sep-02	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	27-Mar-03	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	24-Sep-03	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	24-Sep-03 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	12-Mar-04	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-2	30-Sep-04	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

NA Not analyzed  
µg/l Micrograms per liter  
T Trace  
mg/l Milligrams per liter

- (a) Duplicate sample, originally designated as BSL-4  
(b) Duplicate sample, originally designated as JMM-9  
(c) Duplicate sample, originally designated as IJMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards  
Shaded analytes are specified in the Utah R315-308-4 analyte list

TABLE 2

**CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 35 of 38)**

Well Number	Date Sampled	Acetone (µg/l)	Acrolein (µg/l)	Acrylonitrile (µg/l)	Benzene (µg/l)	Bromodichloromethane (µg/l)	Bromochloromethane (µg/l)	Bromform (µg/l)	Bromomethane (µg/l)	2-Butanone (µg/l) (methyl ethyl ketone; MEK)	Carbon disulfide (µg/l)	Carbon tetrachloride (µg/l)	Chlorobenzene (µg/l)	Chloroethane (µg/l)	2-Chloroethyl vinyl ether (µg/l)	Chloroform (µg/l)	Chloromethane (µg/l)	Dibromomethane (µg/l)	Dibromochloromethane (µg/l)	Dibromochloropropane (1,2-Dibromo-3- chloropropane) (DBCP) (µg/l)	1,2-Dichlorobenzene (µg/l)	1,3-Dichlorobenzene (µg/l)
	Regulatory Standards			5						5												
BSL-3	23-Sep-96	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	10-Dec-96	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	17-Mar-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	20-Jun-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.02	<2.0	NA
BSL-3	15-Sep-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NA
BSL-3	30-Dec-97	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	13-Mar-98	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	16-Jun-98	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<5.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	17-Sep-98	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-3	17-Dec-98	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-3	26-Mar-99	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	26-Mar-99 <sup>(b)</sup>	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	25-Jun-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-3	23-Sep-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	<2.0
BSL-3	17-Dec-99	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	28-Mar-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.18	<2.0	NA
BSL-3	22-Jun-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	15-Sep-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA

NA Not analyzed  
µg/l Micrograms per liter  
T Trace  
mg/l Milligrams per liter

- (a) Duplicate sample, originally designated as BSL-4  
(b) Duplicate sample, originally designated as JMM-9  
(c) Duplicate sample, originally designated as 1JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards  
Shaded analytes are specified in the Utah R315-308-4 analyte list

TABLE 2

**CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 36 of 38)**

Well Number	Date Sampled	Regulatory Standards			trans-1,2-Dichloroethane (µg/l)	cis-1,2-Dichloroethane (µg/l)	1,2-Dichloropropane (µg/l)	1,3-Dichloropropane (µg/l)	cis-1,3-Dichloropropene (µg/l)	trans-1,3-Dichloropropene (µg/l)	Ethylbenzene (µg/l)	Ethylene Dibromide (EDB) (1,2-Dibromoethane) (µg/l)	2-Hexanone (µg/l)	1,4-Dioxane (µg/l)	Methylene chloride (µg/l)	4-Methyl-2-pentanone (µg/l)	Styrene (mg/l)	1,1,1,2-Tetrachloroethane (µg/l)	1,1,2,2-Tetrachloroethane (µg/l)	Tetrachloroethene (PCE) (µg/l)	Toluene (µg/l)	1,1,1-Trichloroethane (TCA) (µg/l)	1,1,2-Trichloroethane (µg/l)	Trichloroethene (TCE) (µg/l)	Trichlorofluoromethane (Fluorotrichloromethane) (Freon II) (µg/l)
		100	70	5																					
BSL-3	23-Sep-96	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	10-Dec-96	<2.0	<2.0	<2.0	NA	<2.0	<10	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	17-Mar-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	20-Jun-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.02	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	15-Sep-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	30-Dec-97	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	13-Mar-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	16-Jun-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	17-Sep-98	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	17-Dec-98	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	26-Mar-99	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	26-Mar-99 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	25-Jun-99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	2.7	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	23-Sep-99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	17-Dec-99	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	28-Mar-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.18	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	22-Jun-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	15-Sep-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

NA Not analyzed  
µg/l Micrograms per liter  
T Trace  
mg/l Milligrams per liter

- (a) Duplicate sample, originally designated as BSL-4  
(b) Duplicate sample, originally designated as JMM-9  
(c) Duplicate sample, originally designated as JJMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards  
Shaded analytes are specified in the Utah R315-308-4 analyte list

TABLE 2

**CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 37 of 38)**

Well Number	Date Sampled	Regulatory Standards																				
		Acetone (µg/l)	Acrolein (µg/l)	Acrylonitrile (µg/l)	Benzene (µg/l)	Bromodichloromethane (µg/l)	Bromochloromethane (µg/l)	Bromoform (µg/l)	Bromomethane (µg/l)	2-Butanone (µg/l) (methyl ethyl ketone; MEK)	Carbon disulfide (µg/l)	Carbon tetrachloride (µg/l)	Chlorobenzene (µg/l)	Chloroethane (µg/l)	2-Chloroethyl vinyl ether (µg/l)	Chloroform (µg/l)	Chloromethane (µg/l)	Dibromomethane (µg/l)	Dibromochloromethane (µg/l)	Dibromochloropropane (1,2-Dibromo-3- chloropropane) (DBCP) (µg/l)	1,2-Dichlorobenzene (µg/l)	1,3-Dichlorobenzene (µg/l)
					5						5											
BSL-3	14-Dec-00	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	22-Mar-01	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	14-Sep-01	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	21-Mar-02	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	21-Mar-02 <sup>(c)</sup>	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	26-Sep-02	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	26-Sep-02 <sup>(b)</sup>	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	27-Mar-03	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	27-Mar-03 <sup>(b)</sup>	<10	NA	<10	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<5.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	24-Sep-03	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	12-Mar-04	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	12-Mar-04 <sup>(b)</sup>	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	30-Sep-04	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA
BSL-3	30-Sep-04 <sup>(b)</sup>	<10	NA	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<10	<2.0	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<2.0	<0.010	<2.0	NA

NA Not analyzed

µg/l Micrograms per liter

T Trace

mg/l Milligrams per liter

(a) Duplicate sample, originally designated as BSL-4

(b) Duplicate sample, originally designated as JMM-9

(c) Duplicate sample, originally designated as 1JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

Shaded analytes are specified in the Utah R315-308-4 analyte list

TABLE 2

**CHRONOLOGICAL SUMMARY OF VOLATILE ORGANIC COMPOUNDS ANALYSIS  
BOUNTIFUL SANITARY LANDFILL**

(Page 38 of 38)

Well Number	Date Sampled	Regulatory Standards			trans-1,2-Dichloroethene (µg/l)	cis-1,2-Dichloroethene (µg/l)	1,2-Dichloropropane (µg/l)	1,3-Dichloropropane (µg/l)	cis-1,2-Dichloropropene (µg/l)	trans-1,2-Dichloropropene (µg/l)	Ethylbenzene (µg/l)	Ethylene Dibromide (EDB) (µg/l)	Dibromomethane (µg/l)	2-Hexanone (µg/l)	Iodomethane (µg/l)	Methylene chloride (µg/l)	4-Methyl-2-pentanone (µg/l)	Styrene (mg/l)	1,1,1,2-Tetrachloroethane (µg/l)	1,1,2,2-Tetrachloroethane (µg/l)	Tetrachloroethene (PCE) (µg/l)	Toluene (µg/l)	1,1,1-Trichloroethane (TCA) (µg/l)	1,1,2-Trichloroethane (µg/l)	Trichloroethene (TCE) (µg/l)	Trichlorofluoromethane (Fluorotrichloromethane) (Freon 11) (µg/l)
		100	70	5							700							100		5	1000	200		5		
BSL-3	14-Dec-00	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	22-Mar-01	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.050	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	14-Sep-01	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	21-Mar-02	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	21-Mar-02 <sup>(c)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	26-Sep-02	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	26-Sep-02 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	27-Mar-03	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	27-Mar-03 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	24-Sep-03	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	12-Mar-04	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	12-Mar-04 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	30-Sep-04	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BSL-3	30-Sep-04 <sup>(b)</sup>	<2.0	<2.0	<2.0	NA	<2.0	<2.0	<2.0	<0.010	<5.0	<5.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

NA Not analyzed

µg/l Micrograms per liter

T Trace

mg/l Milligrams per liter

(a) Duplicate sample, originally designated as BSL-4

(b) Duplicate sample, originally designated as JMM-9

(c) Duplicate sample, originally designated as IJMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

Shaded analytes are specified in the Utah R315-308-4 analyte list

Pages 1 through 13 of Table 3 have been removed by the applicant at the request of the Division because groundwater in the wells from which the sampling data was obtained is not considered representative of groundwater conditions outside the landfill.



TABLE 3  
CHRONOLOGICAL SUMMARY OF METALS <sup>(a)</sup> ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 14 of 20)

Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)
	Regulatory Standards	0.05	2			0.005	0.1		1.0	0.3	0.015	0.05	0.002		0.05	0.1
BSL-1	24-Sep-96	<0.005	0.021	0.40	0.002	<0.004	0.06	0.02	0.058	38	<0.005	0.62	<0.0002	0.04	<0.005	<0.01
	10-Dec-96	<0.005	0.010	0.27	0.001	<0.004	0.03	0.01	0.022	15	<0.005	0.28	<0.0002	0.022	<0.005	<0.01
	18-Mar-97	<0.005	0.009	0.28	<0.005	<0.004	0.03	<0.01	0.028	7.4	0.012	0.25	<0.001	0.013	<0.005	<0.01
	19-Jun-97	<0.005	0.021	0.34	0.001	<0.004	0.06	0.02	0.052	34	0.024	0.55	<0.001	0.04	<0.005	<0.01
	15-Sep-97	<0.005	0.018	0.54	0.005	<0.004	0.15	0.03	0.12	68	0.038	1.0	<0.001	0.15	<0.005	<0.01
	11-Dec-97	0.011	0.013	0.27	<0.001	<0.004	0.018	0.013	0.026	14	0.011	0.33	<0.001	0.025	<0.005	<0.01
	13-Mar-98	<0.005	0.01	0.48	0.002	<0.004	0.07	0.02	0.068	53	0.021	0.96	<0.001	0.05	<0.005	<0.01
	16-Jun-98	<0.005	0.033	0.40	0.004	<0.004	0.06	0.02	0.06	42	0.026	0.71	<0.001	0.043	<0.005	<0.01
	17-Sep-98	<0.005	0.013	0.32	0.001	0.004	0.04	0.02	0.034	25	0.013	0.41	<0.001	0.042	<0.005	<0.01
	17-Dec-98	<0.005	<0.005	0.16	<0.001	<0.004	<0.01	<0.01	<0.004	0.20	<0.005	64.0	<0.001	<0.005	<0.005	<0.01
	26-Mar-99	<0.005	<0.010	0.35	<0.001	<0.004	<0.050	0.020	0.046	37	0.020	0.54	<0.001	0.047	<0.005	<0.01
	25-Jun-99	<0.005	0.021	0.26	<0.001	<0.004	0.050	<0.01	0.020	23	<0.005	0.34	<0.001	0.014	<0.005	<0.01
	23-Sep-99	<0.005	0.016	0.31	<0.001	<0.004	0.040	<0.01	0.031	27	0.013	0.41	<0.001	0.010	<0.005	<0.01
	17-Dec-99	<0.005	0.016	0.28	<0.001	<0.004	0.030	<0.01	0.015	25	0.022	0.37	<0.001	<0.005	<0.005	<0.01
	17-Dec-99 <sup>(e)</sup>	<0.005	0.010	0.21	<0.001	<0.004	<0.01	<0.01	<0.004	10	0.014	0.19	<0.001	<0.005	<0.005	<0.01
	28-Mar-00	<0.005	0.025	0.34	0.001	<0.004	0.060	0.020	0.044	36	0.015	0.49	<0.001	0.039	<0.005	<0.01
	28-Mar-00 <sup>(c)</sup>	<0.005	0.019	0.31	<0.001	<0.004	0.040	0.010	0.032	26	0.013	0.37	<0.001	0.030	<0.005	<0.01
	22-Jun-00	<0.005	0.011	0.25	<0.001	<0.004	0.020	<0.010	0.025	14	0.008	0.24	<0.001	0.013	<0.005	<0.01
	22-Jun-00 <sup>(e)</sup>	<0.005	0.011	0.32	<0.001	<0.004	0.040	<0.010	0.039	25	0.013	0.37	<0.001	0.024	<0.005	<0.001
	15-Sep-00	<0.005	0.019	0.32	0.001	<0.004	0.050	<0.010	0.011	35	0.020	0.52	<0.0010	0.028	<0.005	<0.001
	15-Sep-00 <sup>(e)</sup>	<0.005	0.018	0.33	0.001	<0.004	0.050	0.010	0.018	40	0.020	0.56	<0.0010	0.034	<0.005	<0.001

NA Not analyzed  
mg/l Milligrams per liter

(a) Metals list is as designated in Utah R315-308-4 and/or Appendix A of 40 CFR Part 258

(b) Duplicate sample, originally designated as BSL-4

(c) Duplicate sample, originally designated JMM-9

(d) Duplicate sample, originally designated as JMM-4

(e) Dissolved Metals

Beginning in June 2002 all metals analyzed for dissolved metals only

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

TABLE 3  
CHRONOLOGICAL SUMMARY OF METALS <sup>(a)</sup> ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 15 of 20)

Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)
	Regulatory Standards		0.05	2		0.005	0.1		1.0	0.3	0.015	0.05	0.002		0.05	0.1
BSL-1	14-Dec-00	<0.005	0.014	0.34	<0.001	<0.004	0.052	0.013	0.036	26	0.014	0.42	<0.0010	0.029	<0.005	<0.001
	14-Dec-00 <sup>(c)</sup>	<0.005	0.013	0.31	<0.001	<0.004	0.044	0.011	0.029	22	0.014	0.34	<0.0010	0.025	<0.005	<0.001
	22-Mar-01	<0.005	0.014	0.31	<0.001	<0.004	0.022	<0.010	0.019	16	0.017	0.28	<0.00020	0.017	<0.005	<0.001
	22-Mar-01 <sup>(c)</sup>	<0.005	0.017	0.33	<0.001	<0.004	0.027	<0.010	0.022	21	0.022	0.33	<0.00020	0.023	<0.005	<0.001
	14-Sep-01	<0.005	0.013	0.30	<0.001	<0.004	0.026	<0.010	0.030	17	<0.005	0.32	<0.0010	0.021	<0.005	<0.010
	14-Sep-01 <sup>(c)</sup>	<0.005	0.016	0.34	<0.001	<0.004	0.034	<0.010	0.035	22	0.0082	0.40	<0.0010	0.026	<0.005	<0.010
	21-Mar-02	<0.005	0.0057	0.19	0.0023	<0.0040	0.024	<0.010	0.022	1.8	<0.0050	0.13	<0.0010	<0.0050	<0.005	<0.010
	21-Mar-02 <sup>(e)</sup>	<0.005	<0.0050	0.19	0.0012	<0.0040	<0.010	<0.010	0.0075	0.020	<0.0050	0.069	<0.0010	<0.0050	<0.005	<0.010
	26-Sep-02	<0.005	0.0054	0.18	<0.0010	<0.0040	<0.010	<0.010	<0.0040	<0.010	<0.0050	0.088	<0.00020	<0.0050	<0.005	<0.010
	27-Mar-03	<0.0050	<0.0050	0.20	<0.0010	<0.0040	<0.010	<0.010	<0.0040	<0.010	<0.0050	0.080	<0.0010	<0.0050	<0.0050	<0.010
	24-Sep-03	<0.0050	<0.0050	0.21	<0.0010	<0.0040	<0.010	<0.010	<0.0040	0.039	<0.0050	0.10	<0.00020	<0.0050	<0.0050	<0.010
	12-Mar-04	<0.0050	0.0060	0.27	<0.0010	<0.0040	<0.010	<0.010	0.0052	<0.050	<0.0050	0.12	<0.00020	<0.0050	<0.0050	<0.0050
	30-Sep-04	<0.0050	0.0060	0.25	<0.0010	<0.0040	<0.010	<0.010	0.0040	<0.050	<0.0050	0.12	<0.00020	<0.0050	<0.0050	<0.0050

NA Not analyzed  
mg/l Milligrams per liter

(a) Metals list is as designated in Utah R315-308-4 and/or Appendix A of 40 CFR Part 258

(b) Duplicate sample, originally designated as BSL-4

(c) Duplicate sample, originally designated JMM-9

(d) Duplicate sample, originally designated JMM-4

(e) Dissolved metals

Beginning in June 2002 all metals analyzed for dissolved metals only

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

TABLE 3

**CHRONOLOGICAL SUMMARY OF METALS <sup>(a)</sup> ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 16 of 20)**

Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)
	Regulatory Standards		0.05	2		0.005	0.1		1.0	0.3	0.015	0.05	0.002		0.05	0.1
BSL-2	23-Sep-96	<0.005	<0.005	0.18	<0.001	<b>0.008</b>	<0.01	0.01	0.017	5.9	<0.005	<b>0.85</b>	<0.0002	<0.005	<0.005	<0.01
	10-Dec-96	<0.005	<0.005	0.19	<0.001	<0.004	<0.01	0.01	<0.004	2.3	<0.005	1.7	<0.0002	<0.005	<0.005	<0.01
	17-Mar-97	<0.005	0.011	0.17	<0.005	<0.004	0.09	<0.01	0.032	3.1	<0.005	1.8	<0.0001	<0.005	<0.005	<0.01
	20-Jun-97	<0.005	0.018	0.24	0.001	<0.004	<0.01	0.03	0.030	<b>8.3</b>	<0.005	<b>2.0</b>	<0.0001	0.083	<0.005	<0.01
	20-Jun-97 <sup>(b)</sup>	<0.005	0.014	0.20	0.001	<0.004	<0.01	0.03	0.021	5.7	<0.005	1.8	<0.0001	0.078	<0.005	<0.01
	15-Sep-97	<0.005	0.011	0.23	<0.005	<0.004	<0.01	0.02	0.020	7.1	<0.005	1.9	<0.001	0.14	<0.005	<0.01
	11-Dec-97	<0.005	0.018	0.16	<0.001	<b>0.024</b>	<0.01	0.038	0.019	4.9	<0.005	1.4	<0.001	0.094	<0.005	0.05
	13-Mar-98	0.019	0.013	0.16	0.002	<0.004	<0.01	<0.01	<0.004	4.1	<0.005	1.8	<0.001	<0.005	<0.005	<0.01
	16-Jun-98	<0.005	0.016	0.18	<0.001	<b>0.021</b>	<0.01	<0.01	<0.004	3.9	<0.005	1.7	<0.001	<0.005	<0.005	<0.01
	17-Sep-98	<0.005	<0.005	0.14	<0.001	<b>0.006</b>	<0.01	<0.01	<0.004	1.3	<0.005	1.8	<0.001	0.031	<0.005	<0.01
	17-Dec-98	<0.005	0.005	0.13	<0.001	<0.004	<0.01	<0.01	<0.004	1.0	<0.005	1.4	<0.001	<0.005	<0.005	<0.01
	26-Mar-99	<0.005	0.008	NA	<0.001	<0.004	<0.01	<0.01	<0.004	3.6	<0.005	NA	<0.001	<0.005	<0.005	<0.01
	25-Jun-99	<0.005	0.027	0.12	<0.001	<0.004	0.070	<0.01	<0.004	7.2	<0.005	1.5	<0.001	<0.005	<0.005	<0.01
	25-Jun-99 <sup>(c)</sup>	<0.005	0.030	0.071	<0.001	<0.004	0.070	<0.01	<0.004	3.4	<0.005	1.3	<0.001	<0.005	<0.005	<0.01
	23-Sep-99	<0.005	0.007	0.16	<0.001	<0.004	<0.01	<0.01	<0.004	4.6	<0.005	1.2	<0.001	<0.005	<0.005	<0.01
	23-Sep-99 <sup>(e)</sup>	<0.005	0.008	0.15	<0.001	<0.004	<0.01	<0.01	<0.004	4.2	<0.005	1.2	<0.001	<0.005	<0.005	<0.01
	17-Dec-99	<0.005	0.012	0.12	<0.001	<0.004	<0.01	<0.01	<0.004	4.6	<0.005	<b>0.80</b>	<0.001	<0.005	<0.005	<0.01
	28-Mar-00	<0.005	0.034	0.20	<0.001	<0.004	<0.01	<0.01	0.027	6.6	0.017	1.4	<0.001	0.014	<0.005	<0.01
	22-Jun-00	<0.005	0.036	0.29	<0.001	<0.004	0.020	<0.01	0.050	16	0.009	1.2	<0.001	0.013	<0.005	<0.01
	15-Sep-00	<0.005	0.018	0.16	<0.001	<0.004	<0.01	<0.01	<0.004	5.6	<0.0050	<b>0.88</b>	<0.001	<0.0050	<0.005	<0.01
	14-Dec-00	<0.005	0.013	0.24	<0.001	<0.004	0.037	<0.01	0.110	8.5	0.0084	<b>2.20</b>	<0.001	0.010	<0.005	<0.01

NA Not analyzed  
mg/l Milligrams per liter

(a) Metals list is as designated in Utah R315-308-4 and/or Appendix A of 40 CFR Part 258

(b) Duplicate sample, originally designated as BSL-4

(c) Duplicate sample, originally designated JMM-9

(d) Duplicate sample, originally designated IJMM-4

(e) Dissolved metals

Beginning in June 2002 all metals analyzed for dissolved metals only

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

TABLE 3  
CHRONOLOGICAL SUMMARY OF METALS <sup>(a)</sup> ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 17 of 20)

Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)
	Regulatory Standards		0.05	2		0.005	0.1		1.0	0.3	0.015	0.05	0.002		0.05	0.1
BSL-2	22-Mar-01	<0.005	0.020	0.22	<0.001	<0.004	<0.01	<0.01	<0.005	8.7	0.05	1.8	<0.002	0.0082	<0.005	<0.01
	28-Jun-01	<0.005	0.012	0.23	<0.001	<0.004	<0.01	<0.01	0.022	6.8	0.011	1.9	<0.002	0.013	<0.005	<0.01
	14-Sep-01	<0.005	0.014	0.12	<0.001	<0.004	<0.01	<0.01	0.020	3.7	<0.005	0.93	<0.001	0.012	<0.005	<0.01
	5-Dec-01	<0.005	0.0088	0.17	<0.001	<0.004	<0.01	<0.01	0.016	3.8	<0.005	0.75	<0.001	0.0096	<0.005	<0.01
	21-Mar-02	<0.005	0.0099	0.2	0.0056	<0.004	0.150	<0.01	0.062	2.6	<0.005	1.40	<0.001	<0.005	<0.005	<0.01
	21-Mar-02 <sup>(e)</sup>	<0.005	0.0099	0.18	0.0021	<0.004	0.075	<0.01	<0.004	0.035	<0.005	1.30	<0.001	<0.005	<0.005	<0.01
	20-Jun-02	<0.0050	0.0084	0.13	<0.0010	<0.0040	<0.010	<0.010	0.042	<0.010	<0.0050	1.2	<0.00020	<0.0050	<0.0050	<0.010
	26-Sep-02	<0.0050	0.010	0.069	<0.0010	<0.0040	<0.010	<0.010	0.0065	0.059	<0.0050	0.42	<0.00020	<0.0050	<0.0050	<0.010
	4-Dec-02	<0.0050	0.018	0.067	<0.0010	<0.0040	<0.010	<0.010	0.0072	0.079	<0.0050	0.41	<0.00020	<0.0050	<0.0050	<0.010
	4-Dec-02 <sup>(e)</sup>	<0.0050	0.015	0.064	<0.0010	<0.0040	<0.010	<0.010	0.0065	0.082	<0.0050	0.37	<0.00020	<0.0050	<0.0050	<0.010
	27-Mar-03	<0.0050	0.013	0.15	<0.0010	0.0041	<0.010	<0.010	0.0041	<0.010	<0.0050	0.98	<0.0010	<0.0050	<0.0050	<0.010
	18-Jun-03	<0.0050	<0.0050	0.16	<0.0010	<0.0040	<0.010	<0.010	0.0067	1.4	<0.0050	1.1	<0.00020	<0.0050	<0.0050	<0.010
	24-Sep-03	<0.0050	0.013	0.071	<0.0010	<0.0040	<0.010	<0.010	<0.0040	0.67	<0.0050	0.41	<0.00020	<0.0050	<0.0050	<0.010
	24-Sep-03 <sup>(e)</sup>	<0.0050	0.014	0.072	<0.0010	<0.0040	<0.010	<0.010	<0.0040	0.70	<0.0050	0.43	<0.00020	<0.0050	<0.0050	<0.010
	17-Dec-03	<0.0050	<0.0050	0.12	<0.0010	<0.0040	<0.010	<0.010	0.015	0.50	<0.0050	0.58	<0.00020	<0.0050	<0.0050	<0.010
	12-Mar-04	<0.0050	0.0080	0.15	<0.0010	<0.0040	<0.010	<0.010	0.016	<0.050	<0.0050	1.0	<0.00020	<0.0050	<0.0050	<0.0050
	18-Jun-04	<0.0050	0.015	0.21	<0.0010	<0.0040	<0.010	<0.010	0.0065	0.31	<0.0050	1.3	<0.00020	<0.0050	<0.0050	<0.010
	18-Jun-04 <sup>(e)</sup>	<0.0050	0.036	0.17	<0.0010	<0.0040	<0.010	<0.010	0.0062	0.81	<0.0050	1.1	<0.00020	<0.0050	<0.0050	<0.010
	30-Sep-04	<0.0050	0.0070	0.069	<0.0010	<0.0040	<0.010	<0.010	<0.0040	0.14	<0.0050	0.23	<0.00020	0.010	<0.0050	<0.0050
	10-Dec-04	<0.0050	0.011	0.21	<0.0010	<0.0040	<0.010	<0.010	0.017	0.023	<0.0050	1.0	<0.00020	0.033	<0.0050	<0.010
	10-Dec-04 <sup>(e)</sup>	<0.0050	0.011	0.21	<0.0010	<0.0040	<0.010	<0.010	0.020	0.027	<0.0050	1.0	<0.00020	0.038	<0.0050	<0.0050

NA Not analyzed  
mg/l Milligrams per liter

- (a) Metals list is as designated in Utah R315-308-4 and/or Appendix A of 40 CFR Part 258  
(b) Duplicate sample, originally designated as BSL-4  
(c) Duplicate sample, originally designated JMM-9  
(d) Duplicate sample, originally designated as 1JMM-4  
(e) Dissolved Metals

Beginning in June 2002 all metals analyzed for dissolved metals only

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

TABLE 3  
CHRONOLOGICAL SUMMARY OF METALS <sup>(a)</sup> ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 18 of 20)

Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)
	Regulatory Standards		0.05	2		0.005	0.1		1.0	0.3	0.015	0.05	0.002		0.05	0.1
BSL-3	23-Sep-96	<0.005	0.049	0.18	<0.001	0.005	<0.01	<0.01	<0.004	5.3	<0.005	0.66	<0.0002	<0.005	<0.005	<0.01
	10-Dec-96	<0.005	0.044	0.12	<0.001	<0.004	<0.01	<0.01	<0.004	2.0	<0.005	0.60	<0.0002	<0.005	<0.005	<0.01
	17-Mar-97	<0.005	0.043	0.12	<0.005	<0.004	0.06	<0.01	0.015	3.3	<0.005	0.45	<0.0001	<0.005	<0.005	<0.01
	20-Jun-97	<0.005	0.040	0.14	<0.001	<0.004	<0.01	0.01	0.009	0.34	<0.005	0.50	<0.0001	0.051	<0.005	<0.01
	15-Sep-97	<0.005	0.053	0.16	<0.005	<0.004	<0.01	0.01	<0.004	6.90	<0.005	0.63	<0.0001	0.11	<0.005	<0.01
	11-Dec-97	<0.005	0.056	0.18	<0.001	0.024	<0.01	0.032	0.007	1.8	<0.005	0.72	<0.001	0.093	<0.005	0.04
	13-Mar-98	0.008	0.02	0.26	<0.001	<0.004	<0.01	<0.01	<0.004	0.98	<0.005	0.55	<0.001	<0.005	<0.005	<0.01
	16-Jun-98	<0.005	0.059	0.2	<0.001	0.014	<0.01	<0.01	<0.004	2.2	<0.005	0.5	<0.001	<0.005	<0.005	<0.01
	17-Sep-98	<0.005	0.022	0.23	<0.001	<0.004	<0.01	<0.01	<0.004	0.75	<0.005	0.68	<0.001	0.021	<0.005	<0.01
	17-Dec-98	<0.005	0.042	0.17	<0.001	<0.004	<0.01	<0.01	<0.004	0.27	<0.005	0.53	<0.001	<0.005	<0.005	<0.01
	26-Mar-99	<0.005	0.036	NA	<0.001	<0.004	<0.01	<0.01	<0.004	2.0	<0.005	NA	<0.001	<0.005	<0.005	<0.01
	26-Mar-99 <sup>(b)</sup>	<0.005	0.040	NA	<0.001	<0.004	<0.01	<0.01	<0.004	1.6	<0.005	NA	<0.001	<0.005	<0.005	<0.01
	25-Jun-99	<0.005	0.056	0.12	<0.001	<0.004	0.040	<0.01	<0.004	1.1	<0.005	0.41	<0.001	<0.005	<0.005	<0.01
	23-Sep-99	<0.005	0.050	0.18	<0.001	<0.004	<0.01	<0.01	<0.004	2.6	<0.005	0.58	<0.001	<0.005	<0.005	<0.01
	17-Dec-99	<0.005	0.042	0.17	<0.001	<0.004	<0.01	<0.01	<0.004	2.6	0.045	0.55	<0.001	<0.005	<0.005	<0.01
	28-Mar-00	<0.005	0.050	0.11	<0.001	<0.004	<0.01	<0.01	0.034	2.0	<0.005	0.27	<0.001	<0.005	<0.005	<0.01
	22-Jun-00	<0.005	0.041	0.12	<0.001	<0.004	<0.01	<0.01	0.12	3.4	<0.005	0.44	<0.001	0.007	<0.005	<0.01
	15-Sep-00	<0.005	0.060	0.32	<0.001	<0.004	<0.050	<0.01	0.015	3.6	<0.005	0.81	<0.001	<0.005	<0.005	<0.01
	14-Dec-00	<0.005	0.047	0.28	<0.001	<0.004	0.039	<0.01	0.072	6.5	0.019	0.71	<0.001	0.009	<0.005	<0.01
	22-Mar-01	<0.005	0.050	0.25	<0.001	<0.004	<0.01	<0.01	0.060	4.1	0.064	0.61	<0.002	0.006	<0.005	<0.01
	28-Jun-01	<0.005	0.046	0.14	<0.001	<0.004	<0.01	<0.01	0.020	4.1	0.025	0.52	<0.002	0.010	<0.005	<0.01
	28-Jun-01 <sup>(b)</sup>	<0.005	0.050	0.24	<0.001	<0.004	<0.01	<0.01	0.014	4.3	0.022	0.64	<0.002	0.0096	<0.005	<0.01
	14-Sep-01	<0.005	0.061	0.28	<0.001	<0.004	0.014	<0.01	0.021	7.1	0.011	0.77	<0.001	0.016	<0.005	<0.01

NA Not analyzed  
mg/l Milligrams per liter

(a) Metals list is as designated in Utah R315-308-4 and/or Appendix A of 40 CFR Part 258

(b) Duplicate sample, originally designated as BSL-4

(c) Duplicate sample, originally designated JMM-9

(d) Duplicate sample, originally designated IJMM-4

(e) Dissolved metals

Beginning in June 2002 all metals analyzed for dissolved metals only

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

TABLE 3  
CHRONOLOGICAL SUMMARY OF METALS <sup>(a)</sup> ANALYSIS  
BOUNTIFUL SANITARY LANDFILL  
(Page 19 of 20)

Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)
	Regulatory Standards		0.05	2		0.005	0.1		1.0	0.3	0.015	0.05	0.002		0.05	0.1
BSL-3	5-Dec-01	<0.005	<b>0.064</b>	0.35	<0.001	<0.004	0.012	<0.01	0.016	<b>6.8</b>	0.0052	0.75	<0.001	0.012	<0.005	<0.01
	5-Dec-01 <sup>(c)</sup>	<0.005	<b>0.061</b>	0.27	<0.001	<0.004	0.012	<0.01	0.018	<b>6.90</b>	<0.0050	<b>0.69</b>	<0.001	0.013	<0.005	<0.01
	21-Mar-02	<0.005	0.040	0.1	0.011	<0.004	0.140	<0.01	0.038	<b>1.20</b>	<0.0050	<b>0.50</b>	<0.001	<0.005	<0.005	<0.01
	21-Mar-02 <sup>(c)</sup>	<0.005	0.035	0.18	0.0012	<0.004	0.079	<0.01	<0.004	0.086	<0.0050	<b>0.57</b>	<0.001	<0.005	<0.005	<0.01
	21-Mar-02 <sup>(d)</sup>	<0.005	0.040	0.17	0.007	<0.004	0.170	<0.01	0.064	<b>1.40</b>	<0.0050	<b>0.60</b>	<0.001	<0.005	<0.005	<0.01
	21-Mar-02 <sup>(d)(e)</sup>	<0.005	0.036	0.16	<0.001	<0.004	0.077	<0.01	<0.004	0.12	<0.0050	<b>0.56</b>	<0.001	<0.005	<0.005	<0.01
	20-Jun-02	<0.0050	0.042	0.091	<0.0010	<0.0040	<0.010	<0.010	0.10	0.065	<0.0050	<b>0.48</b>	<0.00020	0.0063	<0.0050	<0.010
	20-Jun-02 <sup>(c)</sup>	<0.0050	0.038	0.079	<0.0010	<0.0040	<0.010	<0.010	0.034	0.013	<0.0050	<b>0.45</b>	<0.00020	<0.0050	<0.0050	<0.010
	26-Sep-02	<0.0050	<b>0.053</b>	0.22	<0.0010	<0.0040	<0.010	<0.010	0.0068	0.10	<0.0050	<b>0.63</b>	<0.00020	<0.0050	<0.0050	<0.010
	26-Sep-02 <sup>(c)</sup>	<0.0050	<b>0.057</b>	0.16	<0.0010	<0.0040	<0.010	<0.010	0.0055	0.092	<0.0050	<b>0.63</b>	<0.00020	<0.0050	<0.0050	<0.010
	4-Dec-02	<0.0050	0.046	0.088	<0.0010	<0.0040	0.020	<0.010	0.010	0.11	<0.0050	<b>0.54</b>	<0.00020	<0.0050	<0.0050	<0.010
	27-Mar-03	<0.0050	0.040	0.091	<0.0010	<0.0040	<0.010	<0.010	0.0048	<0.010	<0.0050	<b>0.54</b>	<0.0010	<0.0050	<0.0050	<0.010
	27-Mar-03 <sup>(c)</sup>	<0.0050	0.039	0.11	<0.0010	<0.0040	<0.010	<0.010	0.0041	0.071	<0.0050	<b>0.54</b>	<0.0010	0.0083	<0.0050	<0.010
	18-Jun-03	<0.0050	0.048	0.082	<0.0010	<0.0040	<0.010	<0.010	0.0056	<b>0.54</b>	<0.0050	<b>0.50</b>	<0.00020	<0.0050	<0.0050	<0.010
	18-Jun-03 <sup>(c)</sup>	<0.0050	0.049	0.093	<0.0010	<0.0040	<0.010	<0.010	0.0070	<b>0.61</b>	<0.0050	<b>0.50</b>	<0.00020	<0.0050	<0.0050	<0.010
	24-Sep-03	<0.0050	<b>0.051</b>	0.12	<0.0010	<0.0040	<0.010	<0.010	<0.0040	<b>0.78</b>	<0.0050	<b>0.54</b>	<0.00020	<0.0050	<0.0050	<0.010
	17-Dec-03	<0.0050	<b>0.053</b>	0.10	<0.0010	<0.0040	<0.010	<0.010	0.0075	<b>0.65</b>	<0.0050	<b>0.53</b>	<0.00020	0.0060	<0.0050	<0.010
	17-Dec-03 <sup>(c)</sup>	<0.0050	<b>0.051</b>	0.11	<0.0010	<0.0040	<0.010	<0.010	<0.0040	<b>0.72</b>	<0.0050	<b>0.52</b>	<0.00020	<0.0050	<0.0050	<0.010
	12-Mar-04	<0.0050	0.045	0.16	<0.0010	<0.0040	<0.010	<0.010	<0.0040	<b>0.76</b>	<0.0050	<b>0.49</b>	<0.00020	<0.0050	<0.0050	<0.0050
	12-Mar-04 <sup>(c)</sup>	<0.0050	0.044	0.16	<0.0010	<0.0040	<0.010	<0.010	0.010	<b>0.64</b>	<0.0050	<b>0.49</b>	<0.00020	<0.0050	<0.0050	<0.0050
	18-Jun-04	<0.0050	<b>0.051</b>	0.13	<0.0010	<0.0040	<0.010	<0.010	0.0058	<b>0.73</b>	<0.0050	<b>0.56</b>	<0.00020	<0.0050	<0.0050	<0.010
	30-Sep-04	<0.0050	<b>0.071</b>	0.14	<0.0010	<0.0040	<0.010	<0.010	0.0060	<b>0.70</b>	<0.0050	<b>0.62</b>	<0.00020	0.025	<0.0050	<0.0050
	30-Sep-04 <sup>(c)</sup>	<0.0050	<b>0.072</b>	0.15	<0.0010	<0.0040	<0.010	<0.010	0.0070	<b>0.78</b>	<0.0050	<b>0.65</b>	<0.00020	0.026	<0.0050	<0.0050

NA Not analyzed  
mg/l Milligrams per liter

(a) Metals list is as designated in Utah R315-308-4 and/or Appendix A of 40 CFR Part 258

(b) Duplicate sample, originally designated as BSL-4

(c) Duplicate sample, originally designated JMM-9

(d) Duplicate sample, originally designated JMM-4

(e) Dissolved metals

Beginning in June 2002 all metals analyzed for dissolved metals only

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

TABLE 3  
 CHRONOLOGICAL SUMMARY OF METALS <sup>(a)</sup> ANALYSIS  
 BOUNTIFUL SANITARY LANDFILL  
 (Page 20 of 20)

Well Number	Date Sampled	Antimony (mg/l)	Arsenic (mg/l)	Barium (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Cobalt (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Manganese (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)
Regulatory Standards			0.05	2		0.005	0.1		1.0	0.3	0.015	0.05	0.002		0.05	0.1
BSL-3	10-Dec-04	<0.0050	0.064	0.22	<0.0010	<0.0040	<0.010	<0.010	0.016	0.13	<0.0050	<b>0.56</b>	<0.00020	0.026	<0.0050	<0.010

NA Not analyzed  
 mg/l Milligrams per liter

- (a) Metals list is as designated in Utah R315-308-4 and/or Appendix A of 40 CFR Part 258
- (b) Duplicate sample, originally designated as BSL-4
- (c) Duplicate sample, originally designated JMM-9
- (d) Duplicate sample, originally designated JMM-4
- (e) Dissolved metals

Beginning in June 2002 all metals analyzed for dissolved metals only

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

Pages 1 through 13 of Table 4 have been removed by the applicant at the request of the Division because groundwater in the wells from which the sampling data was obtained is not considered representative of groundwater conditions outside the landfill.



**CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA  
BOUNTIFUL SANITARY LANDFILL  
(14 of 21)**

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as CaCO <sub>3</sub> ) (mg/l)	Carbonate (as CaCO <sub>3</sub> ) (mg/l)	Chloride (mg/l)	Nitrate (as N) (mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N) (mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)
Regulatory Standards								250	10	250				200	500			6.5-8
BSL-1	24-Sep-96	54	0.62	13	410	770	<10	210	0.01	76	NA <sup>(b)</sup>	<0.05	NA <sup>(b)</sup>	NA	1200	4.7	NM	7.8
	11-Dec-96	57	76	13	420	890	<10	210	0.01	90	NA <sup>(b)</sup>	<0.05	NA <sup>(b)</sup>	NA	1300	3.9	NM	7.8
	18-Mar-97	130	82	10	360	930	<10	220	<0.01	80	NA <sup>(b)</sup>	0.08	NA <sup>(b)</sup>	NA	1400	4.0	NM	7.8
	19-Jun-97	56	72	11	380	910	<10	220	0.02	65	NA <sup>(b)</sup>	0.05	NA <sup>(b)</sup>	NA	1400	5.3	NM	7.8
	15-Sep-97	52	61	11	360	870	<10	210	<0.01	60	NA <sup>(b)</sup>	0.13	NA <sup>(b)</sup>	NA	1400	3.9	NM	7.5
	11-Dec-97	58	67	12	380	890	<10	180	0.04	63	NA <sup>(b)</sup>	<0.05	NA <sup>(b)</sup>	NA	1300	1.4	NM	8.0
	13-Mar-98	220	150	19	440	930	<10	160	0.02	75	NA <sup>(b)</sup>	0.07	NA <sup>(b)</sup>	NA	1300	1.5	NM	7.8
	16-Jun-98	160	1200	19	410	900	<10	170	0.6	75	NA <sup>(b)</sup>	<0.05	NA <sup>(b)</sup>	NA	1300	2.6	NM	7.7
	17-Sep-98	120	86	19	420	940	<10	150	<0.01	54	NA <sup>(b)</sup>	<0.05	NA <sup>(b)</sup>	NA	1200	2.6	NM	7.6
	17-Dec-98	73	64	9.8	400	850	<10	130	0.02	30	NA <sup>(b)</sup>	<0.05	NA <sup>(b)</sup>	NA	1100	<1.0	NM	7.7
	26-Mar-99	140	90	16	370	880	<10	140	<0.01	31	NA <sup>(b)</sup>	<0.05	NA <sup>(b)</sup>	18	1100	4.8	NM	7.3
	25-Jun-99	100	75	14	390	900	<10	140	0.01	20	NA <sup>(b)</sup>	<0.05	NA <sup>(b)</sup>	NA	1200	4.0	NM	7.4
	23-Sep-99	110	77	16	380	820	<10	160	0.04	<5	NA <sup>(b)</sup>	0.17	NA <sup>(b)</sup>	NA	1200	4.0	NM	7.2
	17-Dec-99	37	50	9.7	390	800	<10	170	0.04	12	NA <sup>(b)</sup>	<0.10	NA <sup>(b)</sup>	8.0	1100	4.0	NM	7.30
	17-Dec-99 <sup>(c)</sup>	42	48	9.4	390	840	<10	180	0.020	28	NA <sup>(b)</sup>	<0.10	NA <sup>(b)</sup>	8.0	1200	3.0	NM	7.30
	28-Mar-00	140	93	25	380	810	<10	210	0.023	22	NA <sup>(b)</sup>	0.087	NA <sup>(b)</sup>	NA	1200	3.9	NM	7.60
	28-Mar-00 <sup>(c)</sup>	110	80	20	360	820	<10	200	0.016	27	NA <sup>(b)</sup>	0.054	NA <sup>(b)</sup>	NA	1200	10	NM	7.50
	22-Jun-00	90	72	14	380	940	<10	210	<0.010	<5.0	NA <sup>(b)</sup>	0.15	NA <sup>(b)</sup>	NA	1100	2.0	NM	7.40

µmhos/cm Micro mhos per centimeter

CaCO<sub>3</sub> Calcium carbonate

COD Chemical oxygen demand

mg/l Milligrams per liter

N Nitrogen

NA Not analyzed

NM Not measured

°F Degrees Fahrenheit

TDS Total dissolved solids

TOC Total organic carbon

(a) Duplicate sample, originally designated as BSL-4

(b) Cyanide and sulfate not required in the Utah R317-308-4 (Detection Monitoring) analyte list but are required in the Appendix A, 40 CFR Part 258 (assessment monitoring)

(c) Duplicate sample, originally designated JMM-9.

(d) Duplicate sample, originally designated JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

Shaded analytes are specified in Utah R317-308-4 and or Appendix A of 40 CFR Part 258

CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA  
BOUNTIFUL SANITARY LANDFILL  
(15 of 21)

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as CaCO <sub>3</sub> ) (mg/l)	Carbonate (as CaCO <sub>3</sub> ) (mg/l)	Chloride (mg/l)	Nitrate (as N) (mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N) (mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)
	Regulatory Standards							250	10	250			200		500			6.5-8.5
BSL-1	22-Jun-00 <sup>(c)</sup>	120	86	19	420	950	<10	210	<0.010	<5.0	NA <sup>(b)</sup>	0.16	NA <sup>(b)</sup>	NA	1000	2.4	NM	7.40
	15-Sep-00	150	82	16	340	900	<10	160	<0.010	<5.0	NA <sup>(b)</sup>	0.11	NA <sup>(b)</sup>	NA	1200	<1.0	NM	7.40
	15-Sep-00 <sup>(c)</sup>	160	82	17	340	850	<10	160	<0.010	<5.0	NA <sup>(b)</sup>	0.11	NA <sup>(b)</sup>	NA	1100	<1.0	NM	7.30
	14-Dec-00	120	77	17	340	940	<10	180	<0.010	<5.0	NA <sup>(b)</sup>	0.067	NA <sup>(b)</sup>	57	1200	3.2	NM	7.30
	14-Dec-00 <sup>(c)</sup>	96	69	16	340	970	<10	180	<0.010	<5.0	NA <sup>(b)</sup>	0.05	NA <sup>(b)</sup>	34	1200	11	NM	7.30
	22-Mar-01	79	66	15	340	980	<10	230	0.030	<5.0	NA <sup>(b)</sup>	0.16	NA <sup>(b)</sup>	38	1400	3.3	NM	7.59
	22-Mar-01 <sup>(c)</sup>	87	70	15	340	830	<10	220	0.030	<5.0	NA <sup>(b)</sup>	0.13	NA <sup>(b)</sup>	32	1300	<1.0	NM	7.57
	14-Sep-01	90	72	14	380	860	<10	<b>340</b>	0.240	<5.0	NA <sup>(b)</sup>	0.096	NA <sup>(b)</sup>	27	1400	<1.0	NM	7.54
	14-Sep-01 <sup>(c)</sup>	120	84	17	410	860	<10	<b>340</b>	0.350	<5.0	NA <sup>(b)</sup>	0.12	NA <sup>(b)</sup>	30	1500	<1.0	NM	7.55
	21-Mar-02	54	57	12	500	800	<10	<b>260</b>	0.028	<5.0	NA <sup>(b)</sup>	0.21	NA <sup>(b)</sup>	10	1300	1.9	NM	7.32
	26-Sep-02	57	63	11	370	540	<10	210	<0.010	<5.0	NA <sup>(b)</sup>	0.20	NA <sup>(b)</sup>	<10	<b>680</b>	1.7	NM	7.52
	27-Mar-03	50	62	12	370	840	<10	<b>260</b>	<0.010	<5.0	NA <sup>(b)</sup>	0.26	NA <sup>(b)</sup>	<10	1300	2.4	NM	7.43
	24-Sep-03	50	61	12	350	750	<10	<b>270</b>	<0.010	<5.0	NA <sup>(b)</sup>	0.30	NA <sup>(b)</sup>	<10	1600	2.5	NM	7.30
	12-Mar-04	69	86	15	450	960	<10	<b>330</b>	1.7	33	NA <sup>(b)</sup>	0.23	NA <sup>(b)</sup>	14	1400	1.9	NM	7.39
	30-Sep-04	59	69	12	370	930	<10	<b>300</b>	<0.010	<5.0	NA <sup>(b)</sup>	0.24	NA <sup>(b)</sup>	26	1300	1.8	NM	7.39

umhos/cm Micro mhos per centimeter

CaCO<sub>3</sub> Calcium carbonate

COD Chemical oxygen demand

mg/l Milligrams per liter

N Nitrogen

NA Not analyzed

NM Not measured

°F Degrees Fahrenheit

TDS Total dissolved solids

TOC Total organic carbon

(a) Duplicate sample, originally designated as BSL-4

(b) Cyanide and sulfate not required in the Utah R317-308-4 (Detection Monitoring) analyte list but are required in the Appendix A, 40 CFR Part 258 (assessment monitoring)

(c) Duplicate sample, originally designated JMM-9

(d) Duplicate sample, originally designated JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

Shaded analytes are specified in Utah R317-308-4 and or Appendix A of 40 CFR Part 258

**CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA  
BOUNTIFUL SANITARY LANDFILL  
(16 of 21)**

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as CaCO <sub>3</sub> ) (mg/l)	Carbonate (as CaCO <sub>3</sub> ) (mg/l)	Chloride (mg/l)	Nitrate (as N) (mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N) (mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)
	Regulatory Standards							250	10	250			200		500			6.5-8.5
BSL-2	23-Sep-96	370	570	130	4500	890	<10	9000	<0.01	1300	NA <sup>(b)</sup>	8.3	NA <sup>(b)</sup>	NA	15000	22	NM	7.5
	10-Dec-96	590	840	170	5700	730	<10	10000	0.74	1700	NA <sup>(b)</sup>	7.1	NA <sup>(b)</sup>	NA	19000	11	NM	7.5
	17-Mar-97	880	1300	190	7600	740	<10	13000	0.11	1700	NA <sup>(b)</sup>	9.7	NA <sup>(b)</sup>	NA	26000	20	NM	7.3
	20-Jun-97	780	1200	190	7400	690	<10	15000	0.03	1700	NA <sup>(b)</sup>	10	NA <sup>(b)</sup>	NA	26000	6.2	NM	7.7
	20-Jun-97 <sup>(a)</sup>	750	1200	190	7500	690	<10	15000	0.03	1700	NA <sup>(b)</sup>	10	NA <sup>(b)</sup>	NA	27000	6.4	NM	7.7
	15-Sep-97	590	880	160	5600	790	<10	13000	<0.01	1400	NA <sup>(b)</sup>	12	NA <sup>(b)</sup>	NA	24000	19	NM	7.4
	11-Dec-97	520	770	140	5200	840	<10	9900	0.02	1300	NA <sup>(b)</sup>	10	NA <sup>(b)</sup>	NA	19000	8.6	NM	7.7
	13-Mar-98	900	130	200	7700	790	<10	14000	0.17	1700	NA <sup>(b)</sup>	6.4	NA <sup>(b)</sup>	NA	25000	13	NM	7.6
	16-Jun-98	810	1200	180	8300	760	<10	17000	0.04	2600	NA <sup>(b)</sup>	11	NA <sup>(b)</sup>	NA	27000	11	NM	7.3
	17-Sep-98	730	1100	170	9900	850	<10	14000	<0.01	1700	NA <sup>(b)</sup>	7.9	NA <sup>(b)</sup>	NA	24000	15	NM	7.2
	17-Dec-98	710	1100	150	6800	840	<10	13000	<0.01	1600	NA <sup>(b)</sup>	11.0	NA <sup>(b)</sup>	NA	23000	11	NM	7.3
	26-Mar-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.0	NA	<0.005	NA	NA	NA	NM	NA
	25-Jun-99	710	1100	170	7200	820	<10	13000	<0.01	2100	NA <sup>(b)</sup>	5.6	NA <sup>(b)</sup>	NA	26000	19	NM	7.1
	25-Jun-99 <sup>(c)</sup>	660	1100	190	7600	820	<10	13000	<0.01	2000	NA <sup>(b)</sup>	5.7	NA <sup>(b)</sup>	NA	26000	18	NM	7.1
	23-Sep-99	520	820	170	5700	890	<10	10000	<0.01	1500	NA <sup>(b)</sup>	9.9	NA <sup>(b)</sup>	NA	19000	21	NM	7.2
	23-Sep-99 <sup>(c)</sup>	510	800	160	5700	890	<10	8800	0.02	1700	NA <sup>(b)</sup>	9.7	NA <sup>(b)</sup>	NA	19000	18	NM	7.3
	17-Dec-99	300	520	130	4600	900	<10	8600	0.14	1000	NA <sup>(b)</sup>	7.8	NA <sup>(b)</sup>	160	15000	15	NM	7.30
	28-Mar-00	690	1100	230	5400	750	<10	14000	0.077	1900	NA <sup>(b)</sup>	8.1	NA <sup>(b)</sup>	NA	25000	17	NM	7.30

µmhos/cm Micro mhos per centimeter

CaCO<sub>3</sub> Calcium carbonate

COD Chemical oxygen demand

mg/l Milligrams per liter

N Nitrogen

NA Not analyzed

NM Not measured

°F Degrees Fahrenheit

TDS Total dissolved solids

TOC Total organic carbon

(a) Duplicate sample, originally designated as BSL-4

(b) Cyanide and sulfate not required in the Utah R317-308-4 (Detection Monitoring) analyte list but are required in the Appendix A, 40 CFR Part 258 (assessment monitoring)

(c) Duplicate sample, originally designated JMM-9.

(d) Duplicate sample, originally designated JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

Shaded analytes are specified in Utah R317-308-4 and or Appendix A of 40 CFR Part 258

CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA  
BOUNTIFUL SANITARY LANDFILL  
(17 of 21)

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as CaCO <sub>3</sub> ) (mg/l)	Carbonate (as CaCO <sub>3</sub> ) (mg/l)	Chloride (mg/l)	Nitrate (as N) (mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N) (mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)
	Regulatory Standards							250	10	250			200		500			6.5-8.5
BSL-2	22-Jun-00	640	1100	230	7600	860	<10	14000	0.020	1700	NA <sup>(b)</sup>	7.7	NA <sup>(b)</sup>	NA	22000	12	NM	7.20
	15-Sep-00	360	480	120	4100	1000	<10	6700	<0.010	1200	NA <sup>(b)</sup>	7.7	NA <sup>(b)</sup>	NA	12000	<1.0	NM	7.30
	14-Dec-00	670	1000	260	6000	960	<10	13000	0.020	1500	NA <sup>(b)</sup>	7.0	NA <sup>(b)</sup>	1100	24000	14	NM	7.00
	22-Mar-01	650	1100	180	6600	910	<10	14000	0.040	2000	NA <sup>(b)</sup>	8.4	NA <sup>(b)</sup>	540	30000	18	NM	7.28
	28-Jun-01	680	1100	180	7100	890	<10	16000	0.120	1600	NA <sup>(b)</sup>	5.5	NA <sup>(b)</sup>	1400	27000	11	NM	7.31
	14-Sep-01	340	550	130	4500	1000	<10	11000	0.140	1400	NA <sup>(b)</sup>	7.1	NA <sup>(b)</sup>	680	16000	9	NM	7.45
	5-Dec-01	260	380	130	3600	880	<10	8100	0.710	900	NA <sup>(b)</sup>	2.8	NA <sup>(b)</sup>	330	9900	10	NM	7.53
	21-Mar-02	600	1000	170	6800	850	<10	13000	0.23	2000	NA <sup>(b)</sup>	8.2	NA <sup>(b)</sup>	1400	25000	13	NM	7.24
	20-Jun-02	710	1300	260	8700	880	<10	12000	0.012	1800	NA <sup>(b)</sup>	7.0	NA <sup>(b)</sup>	1400	25000	8.7	NM	7.21
	26-Sep-02	190	320	99	3400	400	<10	4300	<0.010	650	NA <sup>(b)</sup>	4.9	NA <sup>(b)</sup>	230	9600	12	NM	7.44
	4-Dec-02	170	320	87	3900	990	<10	8100	0.020	780	NA <sup>(b)</sup>	4.1	NA <sup>(b)</sup>	260	11000	13	NM	7.50
	4-Dec-02 <sup>(c)</sup>	150	300	92	3600	990	<10	7400	0.020	780	NA <sup>(b)</sup>	4.5	NA <sup>(b)</sup>	230	11000	25	NM	7.46
	27-Mar-03	470	830	210	5900	940	<10	12000	0.060	1600	NA <sup>(b)</sup>	7.7	NA <sup>(b)</sup>	320	21000	15	NM	7.31
	18-Jun-03	520	900	180	5800	930	<10	11000	<0.010	1900	NA <sup>(b)</sup>	4.5	NA <sup>(b)</sup>	1400	23000	12	NM	7.18
	24-Sep-03	160	360	120	3300	960	<10	6100	<0.010	1000	NA <sup>(b)</sup>	5.3	NA <sup>(b)</sup>	300	15000	14	NM	7.38
	24-Sep-03 <sup>(c)</sup>	170	370	120	3400	980	<10	5800	<0.010	1000	NA <sup>(b)</sup>	5.0	NA <sup>(b)</sup>	290	12000	25	NM	7.41
	17-Dec-03	210	360	97	3200	1000	<10	6100	0.060	730	NA <sup>(b)</sup>	4.4	NA <sup>(b)</sup>	520	13000	9.6	NM	7.46
	12-Mar-04	360	640	180	6500	950	<10	10000	2.600	900	NA <sup>(b)</sup>	5.6	NA <sup>(b)</sup>	1100	21000	17	NM	7.49
	18-Jun-04	560	970	180	6700	990	<10	12000	0.036	1100	NA <sup>(b)</sup>	6.8	NA <sup>(b)</sup>	1300	22000	19	NM	7.33

µmhos/cm Micro mhos per centimeter

CaCO<sub>3</sub> Calcium carbonate

COD Chemical oxygen demand

mg/l Milligrams per liter

N Nitrogen

NA Not analyzed

NM Not measured

°F Degrees Fahrenheit

TDS Total dissolved solids

TOC Total organic carbon

(a) Duplicate sample, originally designated as BSL-4

(b) Cyanide and sulfate not required in the Utah R317-308-4 (Detection Monitoring) analyte list but are required in the Appendix A, 40 CFR Part 258 (assessment monitoring)

(c) Duplicate sample, originally designated JMM-9.

(d) Duplicate sample, originally designated JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

Shaded analytes are specified in Utah R317-308-4 and or Appendix A of 40 CFR Part 258

CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA  
BOUNTIFUL SANITARY LANDFILL  
(18 of 21)

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as CaCO <sub>3</sub> ) (mg/l)	Carbonate (as CaCO <sub>3</sub> ) (mg/l)	Chloride (mg/l)	Nitrate (as N) (mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N) (mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)
	Regulatory Standards							250	10	250			200		500			6.5-8.5
BSL-2	18-Jun-04 <sup>(c)</sup>	510	940	200	7000	930	<10	13000	0.037	1300	NA <sup>(b)</sup>	7.0	NA <sup>(b)</sup>	1300	24000	16	NM	7.3
	30-Sep-04	90	150	67	2000	1000	<10	4600	<0.010	440	NA <sup>(b)</sup>	3.5	NA <sup>(b)</sup>	110	41000	17	NM	7.7
	10-Dec-04	350	500	110	4000	1000	<10	7300	0.64	910	NA <sup>(b)</sup>	3.0	NA <sup>(b)</sup>	610	14000	18	NM	7.0
	10-Dec-04 <sup>(c)</sup>	350	530	120	4300	1000	<10	7700	0.71	860	NA <sup>(b)</sup>	2.6	NA <sup>(b)</sup>	620	15000	21	NM	7.0

µmhos/cm Micro mhos per centimeter

CaCO<sub>3</sub> Calcium carbonate

COD Chemical oxygen demand

mg/l Milligrams per liter

N Nitrogen

NA Not analyzed

NM Not measured

°F Degrees Fahrenheit

TDS Total dissolved solids

TOC Total organic carbon

(a) Duplicate sample, originally designated as BSL-4

(b) Cyanide and sulfate not required in the Utah R317-308-4 (Detection Monitoring) analyte list but are required in the Appendix A, 40 CFR Part 258 (assessment monitoring)

(c) Duplicate sample, originally designated JMM-9.

(d) Duplicate sample, originally designated 1JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

Shaded analytes are specified in Utah R317-308-4 and or Appendix A of 40 CFR Part 258

CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA  
BOUNTIFUL SANITARY LANDFILL  
(19 of 21)

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as CaCO <sub>3</sub> ) (mg/l)	Carbonate (as CaCO <sub>3</sub> ) (mg/l)	Chloride (mg/l)	Nitrate (as N) (mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N) (mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH unit)
	Regulatory Standards							250	10	250			200		500			6.5-8.5
BSL-3	23-Sep-96	210	1100	540	16000	1500	<10	<b>23000</b>	0.02	<b>1900</b>	NA <sup>(b)</sup>	10	NA <sup>(b)</sup>	NA	<b>39000</b>	44	NM	7.5
	10-Dec-96	210	1100	580	12000	1500	<10	<b>21000</b>	0.63	<b>1600</b>	NA <sup>(b)</sup>	10	NA <sup>(b)</sup>	NA	<b>37000</b>	9.8	NM	7.4
	17-Mar-97	210	1100	460	12000	1200	<10	<b>21000</b>	0.25	<b>1700</b>	NA <sup>(b)</sup>	8.9	NA <sup>(b)</sup>	NA	<b>37000</b>	14.0	NM	7.4
	20-Jun-97	170	1100	430	11000	1400	<10	<b>22000</b>	0.11	<b>1800</b>	NA <sup>(b)</sup>	8.9	NA <sup>(b)</sup>	NA	<b>34000</b>	3.3	NM	7.6
	15-Sep-97	170	990	500	12000	1200	<10	<b>23000</b>	<0.01	<b>1700</b>	NA <sup>(b)</sup>	9.9	NA <sup>(b)</sup>	NA	<b>41000</b>	18	NM	7.1
	11-Dec-97	200	1100	500	12000	1400	<10	<b>22000</b>	<0.01	<b>1600</b>	NA <sup>(b)</sup>	4.6	NA <sup>(b)</sup>	NA	<b>37000</b>	11	NM	7.8
	13-Mar-98	210	1300	550	13000	1300	<10	<b>21000</b>	0.21	<b>1700</b>	NA <sup>(b)</sup>	4.7	NA <sup>(b)</sup>	NA	<b>36000</b>	12	NM	7.5
	16-Jun-98	190	1100	460	13000	1400	<10	<b>21000</b>	0.03	<b>2400</b>	NA <sup>(b)</sup>	9.8	NA <sup>(b)</sup>	NA	<b>36000</b>	12	NM	7.5
	17-Sep-98	200	1000	470	12000	1400	<10	<b>19000</b>	0.12	<b>1800</b>	NA <sup>(b)</sup>	6.4	NA <sup>(b)</sup>	NA	<b>36000</b>	25	NM	7.4
	17-Dec-98	210	1200	480	12000	1400	<10	<b>21000</b>	<0.01	<b>1800</b>	NA <sup>(b)</sup>	10.0	NA <sup>(b)</sup>	NA	<b>36000</b>	13	NM	7.5
	26-Mar-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	<0.005	NA	NA	NA	NM	NA
	26-Mar-99 <sup>(c)</sup>	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.0	NA	<0.005	NA	NA	NA	NM	NA
	25-Jun-99	150	1100	420	11000	1300	<10	<b>21000</b>	0.02	<b>2200</b>	NA <sup>(b)</sup>	4.7	NA <sup>(b)</sup>	NA	<b>37000</b>	17	NM	7.3
	23-Sep-99	200	1200	540	13000	1200	<10	<b>21000</b>	0.11	<b>2200</b>	NA <sup>(b)</sup>	9.6	NA <sup>(b)</sup>	NA	<b>38000</b>	18	NM	7.4
	17-Dec-99	200	1200	530	13000	1300	<10	<b>24000</b>	0.13	<b>1600</b>	NA <sup>(b)</sup>	7.8	NA <sup>(b)</sup>	3700	<b>38000</b>	15	NM	7.30
	28-Mar-00	200	1200	610	11000	1300	<10	<b>23000</b>	0.04	<b>2300</b>	NA <sup>(b)</sup>	7.5	NA <sup>(b)</sup>	NA	<b>39000</b>	15	NM	7.50
	22-Jun-00	210	1400	720	16000	1400	<10	<b>24000</b>	0.03	<b>1900</b>	NA <sup>(b)</sup>	9.5	NA <sup>(b)</sup>	NA	<b>37000</b>	13	NM	7.30
	15-Sep-00	220	1100	470	11000	1700	<10	<b>19000</b>	0.18	<b>1700</b>	NA <sup>(b)</sup>	11	NA <sup>(b)</sup>	NA	<b>38000</b>	<1.0	NM	7.20

µmhos/cm Micro mhos per centimeter

CaCO<sub>3</sub> Calcium carbonate

COD Chemical oxygen demand

mg/l Milligrams per liter

N Nitrogen

NA Not analyzed

NM Not measured

°F Degrees Fahrenheit

TDS Total dissolved solids

TOC Total organic carbon

(a) Duplicate sample, originally designated as BSL-4

(b) Cyanide and sulfate not required in the Utah R317-308-4 (Detection Monitoring) analyte list but are required in the Appendix A, 40 CFR Part 258 (assessment monitoring)

(c) Duplicate sample, originally designated JMM-9.

(d) Duplicate sample, originally designated 1JMM-4

Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

Shaded analytes are specified in Utah R317-308-4 and or Appendix A of 40 CFR Part 258

CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA  
BOUNTIFUL SANITARY LANDFILL  
(20 of 21)

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as CaCO <sub>3</sub> ) (mg/l)	Carbonate (as CaCO <sub>3</sub> ) (mg/l)	Chloride (mg/l)	Nitrate (as N) (mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N) (mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)
	Regulatory Standards							250	10	250			200		500			6.5-8.5
BSL-3	14-Dec-00	200	1200	730	13000	1400	<10	22000	0.02	1900	NA <sup>(b)</sup>	8.4	NA <sup>(b)</sup>	990	32000	11	NM	7.2
	22-Mar-01	190	1100	460	10000	1400	<10	21000	0.05	2100	NA <sup>(b)</sup>	9.6	NA <sup>(b)</sup>	1000	37000	15	NM	7.5
	28-Jun-01	210	1400	700	16000	1400	<10	24000	0.14	1800	NA <sup>(b)</sup>	4.7	NA <sup>(b)</sup>	1100	38000	15	NM	7.5
	28-Jun-01 <sup>(c)</sup>	210	1200	510	12000	1400	<10	25000	0.12	1800	NA <sup>(b)</sup>	8.9	NA <sup>(b)</sup>	1100	39000	10	NM	7.5
	14-Sep-01	220	1300	550	12000	1500	<10	29000	0.28	1800	NA <sup>(b)</sup>	11	NA <sup>(b)</sup>	1200	42000	15	NM	7.5
	5-Dec-01	220	1200	670	11000	990	<10	28000	0.043	2600	NA <sup>(b)</sup>	13	NA <sup>(b)</sup>	920	48000	13	NM	7.3
	5-Dec-01 <sup>(c)</sup>	210	1300	770	13000	1300	<10	24000	0.059	2200	NA <sup>(b)</sup>	12	NA <sup>(b)</sup>	980	40000	10	NM	7.4
	21-Mar-02	170	1100	370	9900	1400	<10	21000	0.05	2100	NA <sup>(b)</sup>	11	NA <sup>(b)</sup>	1100	38000	8.3	NM	7.5
	21-Mar-02 <sup>(d)</sup>	200	1200	440	11000	1400	<10	23000	<0.01	2100	NA <sup>(b)</sup>	11	NA <sup>(b)</sup>	1200	38000	7.9	NM	7.5
	20-Jun-02	240	1400	540	15000	1500	<10	20000	<0.010	1500	NA <sup>(b)</sup>	8.6	NA <sup>(b)</sup>	1100	41000	6.8	NM	7.4
	20-Jun-02 <sup>(c)</sup>	230	1600	710	17000	1400	<10	21000	<0.010	1700	NA <sup>(b)</sup>	8.5	NA <sup>(b)</sup>	1400	39000	5.5	NM	7.3
	26-Sep-02	200	1200	540	11000	680	<10	16000	<0.010	1800	NA <sup>(b)</sup>	12	NA <sup>(b)</sup>	950	44000	20	NM	7.3
	26-Sep-02 <sup>(c)</sup>	190	1200	570	12000	730	<10	16000	<0.010	1800	NA <sup>(b)</sup>	12	NA <sup>(b)</sup>	1200	41000	24	NM	7.3
	4-Dec-02	160	1100	550	13000	1300	<10	22000	0.020	1900	NA <sup>(b)</sup>	9.4	NA <sup>(b)</sup>	1200	45000	26	NM	7.3
	27-Mar-03	190	1200	500	11000	1500	<10	21000	<0.010	2000	NA <sup>(b)</sup>	9.7	NA <sup>(b)</sup>	1200	46000	19	NM	7.4
	27-Mar-03 <sup>(c)</sup>	190	1200	530	11000	1500	<10	21000	0.080	2000	NA <sup>(b)</sup>	10	NA <sup>(b)</sup>	920	39000	24	NM	7.4
	18-Jun-03	200	1300	560	13000	1400	<10	21000	<0.010	2500	NA <sup>(b)</sup>	5.4	NA <sup>(b)</sup>	1200	41000	6.7	NM	7.3
	18-Jun-03 <sup>(c)</sup>	190	1200	570	12000	1400	<10	20000	<0.010	2000	NA <sup>(b)</sup>	5.4	NA <sup>(b)</sup>	1100	42000	7.2	NM	7.4

µmhos/cm Micro mhos per centimeter

CaCO<sub>3</sub> Calcium carbonate

COD Chemical oxygen demand

mg/l Milligrams per liter

N Nitrogen

NA Not analyzed

NM Not measured

°F Degrees Fahrenheit

TDS Total dissolved solids

TOC Total organic carbon

(a) Duplicate sample, originally designated as BSL-4

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Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

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CHRONOLOGICAL SUMMARY OF WATER QUALITY DATA  
BOUNTIFUL SANITARY LANDFILL  
(21 of 21)

Well Number	Date Sampled	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Bicarbonate (as CaCO <sub>3</sub> ) (mg/l)	Carbonate (as CaCO <sub>3</sub> ) (mg/l)	Chloride (mg/l)	Nitrate (as N, mg/l)	Sulfate (mg/l)	Sulfide (mg/l)	Ammonia (as N, mg/l)	Cyanide (mg/l)	COD (mg/l)	TDS (mg/l)	TOC (mg/l)	Laboratory Conductivity (umhos/cm)	Laboratory pH (pH units)
	Regulatory Standards							250	10	250			200		500			6.5-8.5
BSL-3	24-Sep-03	160	1200	520	12000	1300	<10	20000	<0.030	2300	NA <sup>(b)</sup>	10	NA <sup>(b)</sup>	1100	50000	7.9	NM	7.3
	17-Dec-03	170	1100	540	12000	1500	<10	17000	<0.010	1900	NA <sup>(b)</sup>	11	NA <sup>(b)</sup>	1200	40000	14	NM	7.4
	17-Dec-03 <sup>(c)</sup>	170	1100	520	11000	1500	<10	16000	>0.010	1900	NA <sup>(b)</sup>	10	NA <sup>(b)</sup>	1100	40000	18	NM	7.5
	12-Mar-04	140	1100	410	10000	1400	<10	13000	0.38	1000	NA <sup>(b)</sup>	9.3	NA <sup>(b)</sup>	760	31000	16	NM	7.6
	12-Mar-04 <sup>(c)</sup>	170	1000	420	10000	1400	<10	15000	0.24	950	NA <sup>(b)</sup>	9.0	NA <sup>(b)</sup>	950	32000	24	NM	7.6
	18-Jun-04	180	1100	450	12000	1600	<10	16000	0.022	1000	NA <sup>(b)</sup>	12	NA <sup>(b)</sup>	880	28000	13	NM	7.5
	30-Sep-04	190	1200	550	12000	1600	<10	11000	<0.010	1500	NA <sup>(b)</sup>	12	NA <sup>(b)</sup>	1500	40000	13	NM	7.3
	30-Sep-04 <sup>(c)</sup>	200	1300	550	12000	1700	<10	11000	<0.010	1700	NA <sup>(b)</sup>	12.0	NA <sup>(b)</sup>	1800	39000	17	NM	7.3
	10-Dec-04	180	1200	480	11000	1600	<10	16000	0.046	2300	NA <sup>(b)</sup>	4.6	NA <sup>(b)</sup>	1400	38000	17	NM	7.2

µmhos/cm Micro mhos per centimeter

CaCO<sub>3</sub> Calcium carbonate

COD Chemical oxygen demand

mg/l Milligrams per liter

N Nitrogen

NA Not analyzed

NM Not measured

°F Degrees Fahrenheit

TDS Total dissolved solids

TOC Total organic carbon

(a) Duplicate sample, originally designated as BSL-4

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Bolded values indicate concentrations that exceed Utah Ground Water Quality Standards or Federal Primary or Secondary Drinking Water Standards

Shaded analytes are specified in Utah R317-308-4 and or Appendix A of 40 CFR Part 258



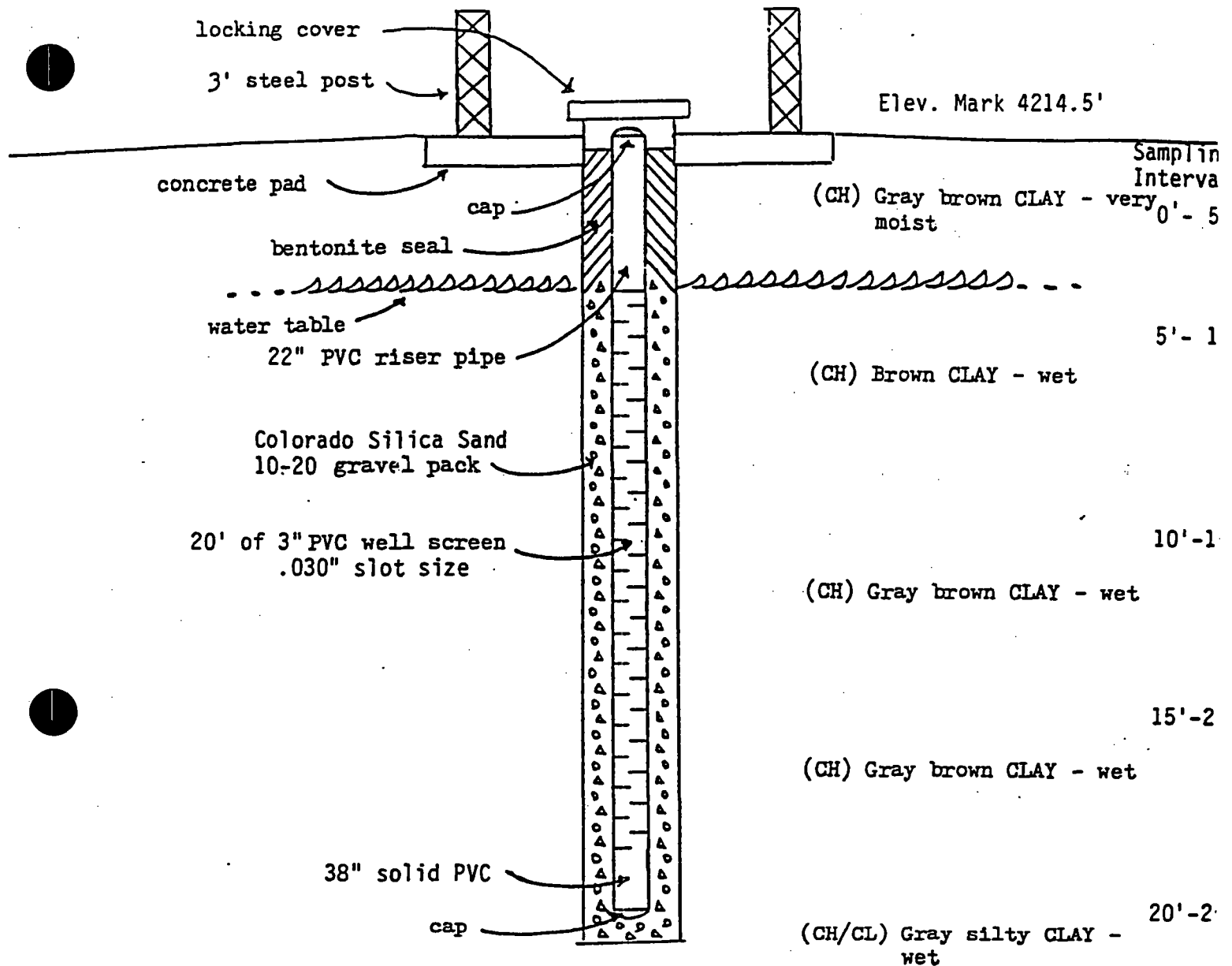
MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SAND		SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES		SM	SILTY SANDS, SAND-SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OR LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.

## SOIL CLASSIFICATION CHART

# UNIFIED SOIL CLASSIFICATION SYSTEM

DC-1

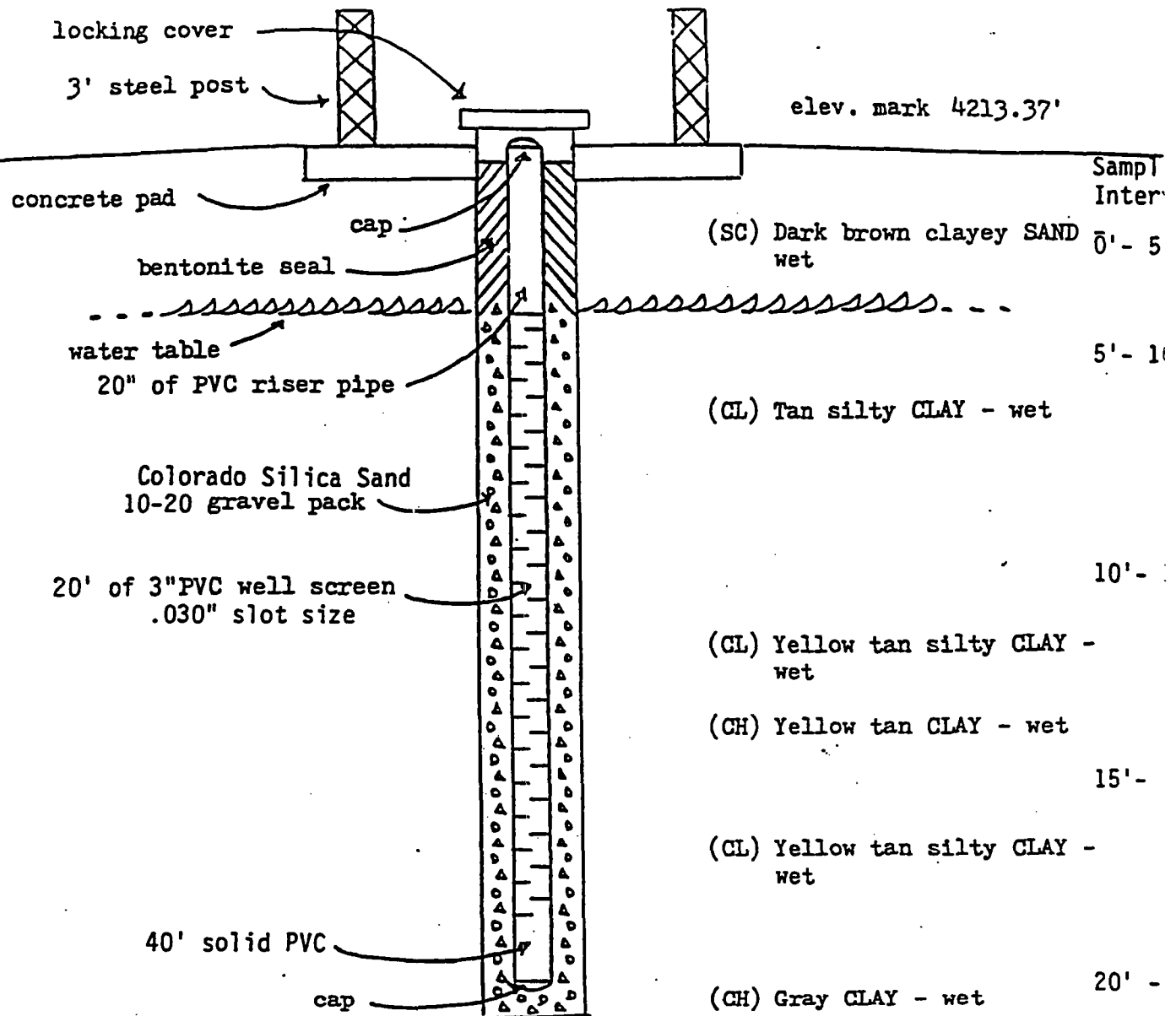


4/19/85

Drilling Method--Cable Tool  
Development Method--Air Surge

Figure 3

DC-2

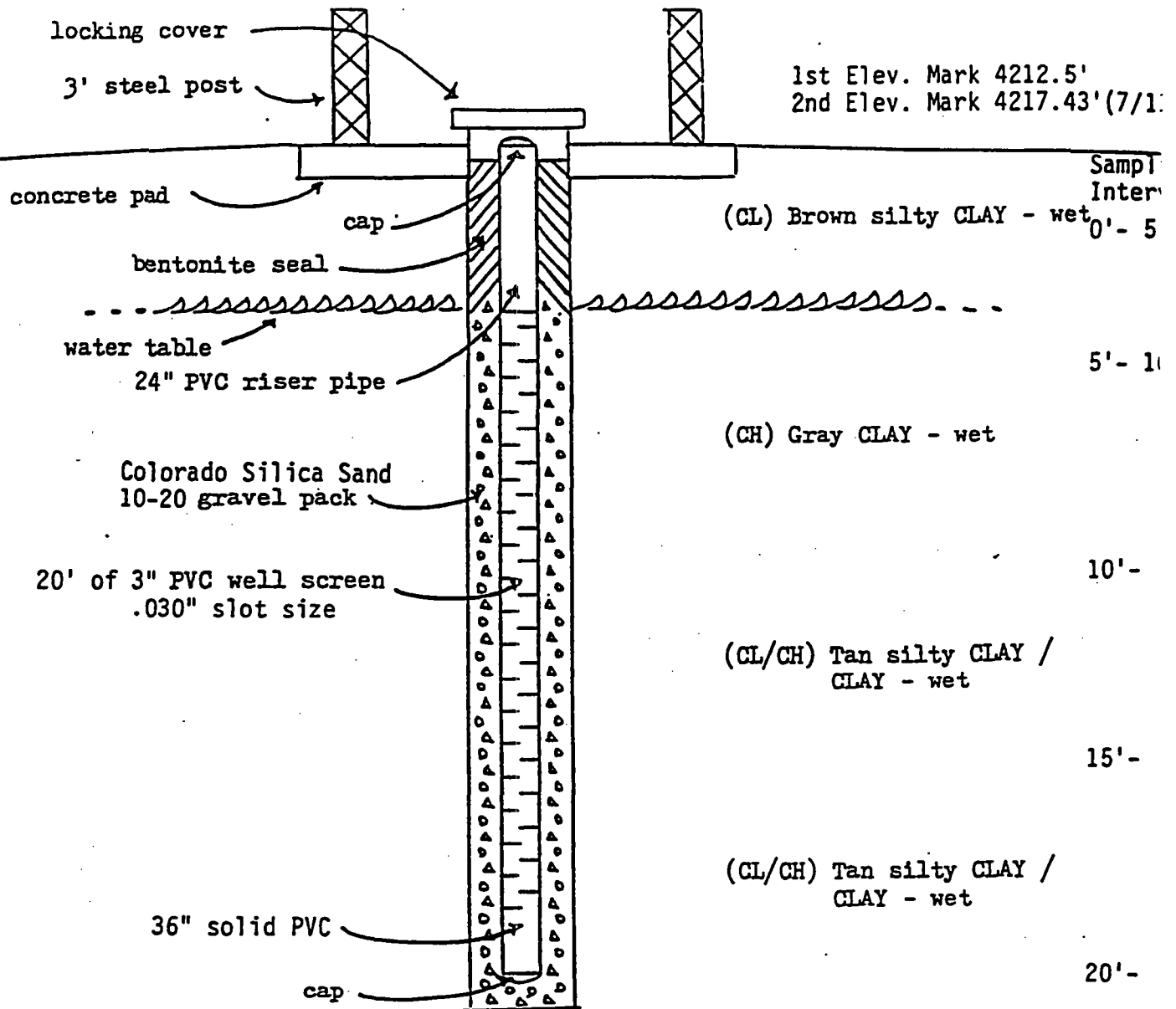


4/23/85

Drilling Method--Cable Tool  
Development Method--Air Surge

Figure 4

DC-3

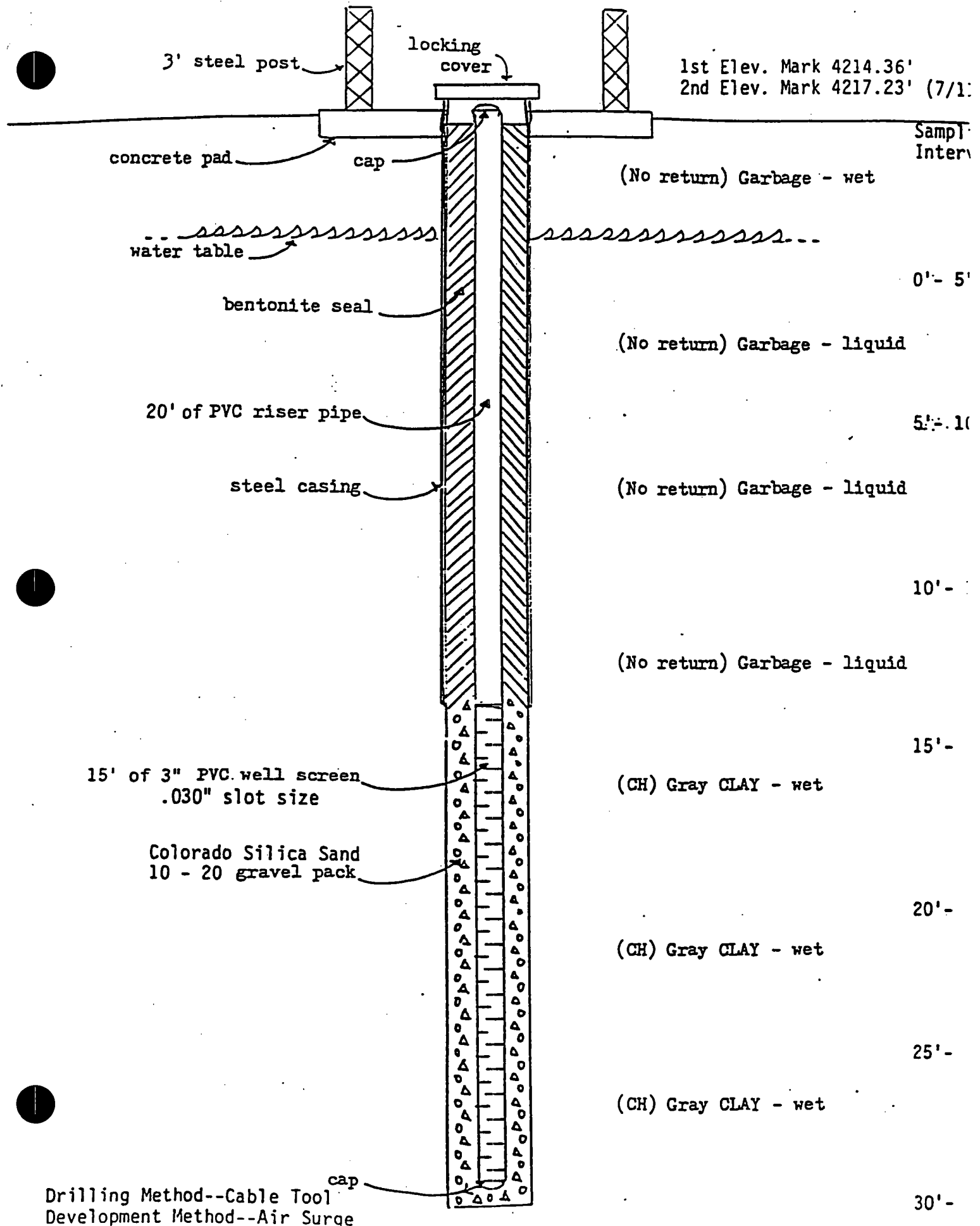


4/25/85

Drilling Method--Cable Tool  
Development Method--Air Surge

Figure 5

DC-4



DEPTH  
(FEET)

0

LOCKING WELL CAP

CONCRETE PAD

1-1/2" SS DEDICATED BAILER

BENTONITE SEAL

2" TEFLON WELL CASING

16-40 COLORADO SILICA SAND

2" TEFLON WELL SCREEN  
WITH 0.01" SLOTS

7.25" BOREHOLE

2" TEFLON SEDIMENT TRAP  
AND CAP

4

8

10

BROWNISH BLACK (5YR2/1) SILTY  
CLAY / CLAYEY SILT

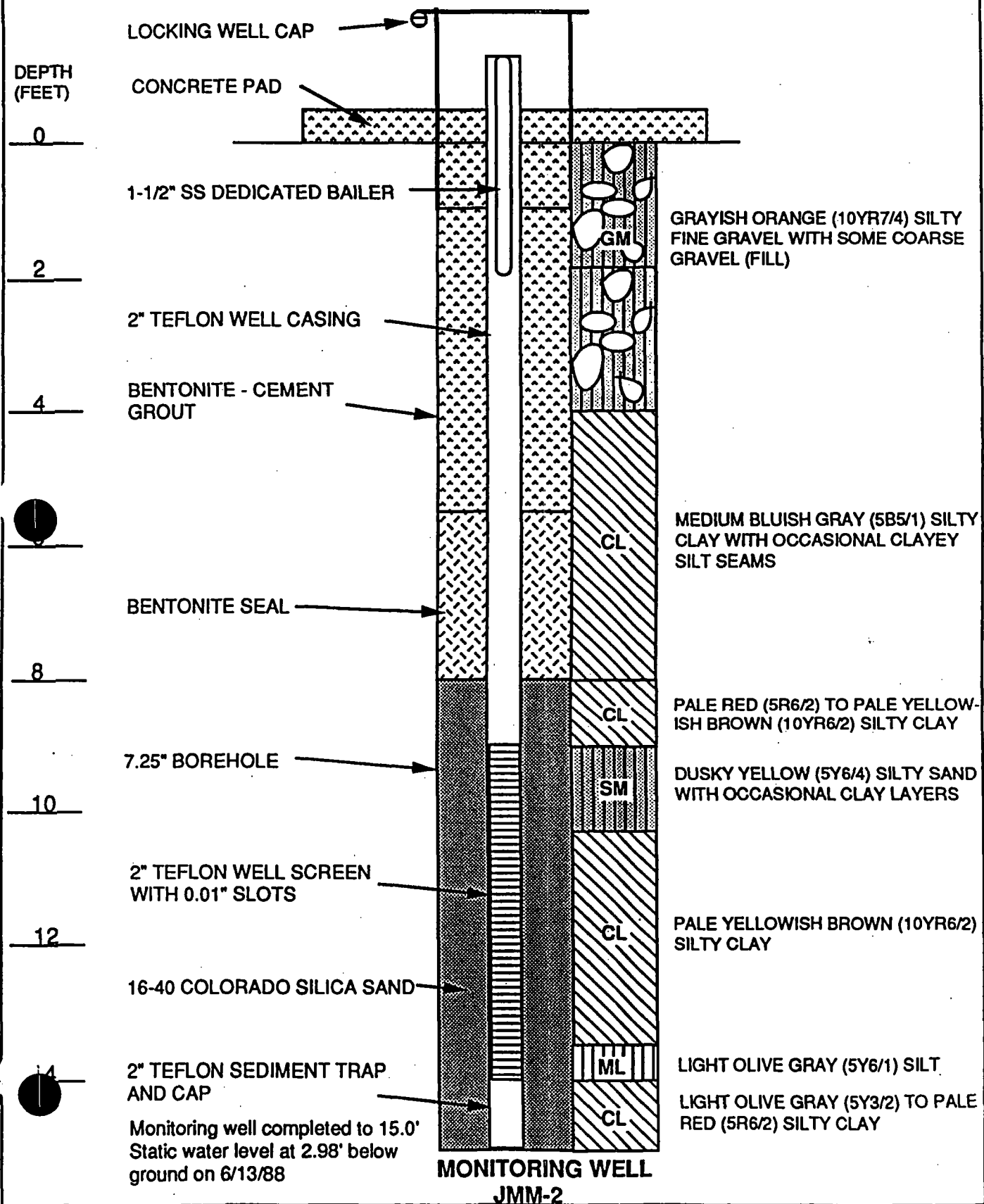
GRAYISH RED (5R4/2) SILTY CLAY  
CLAYEY SILT, WEAKLY CEMENTED

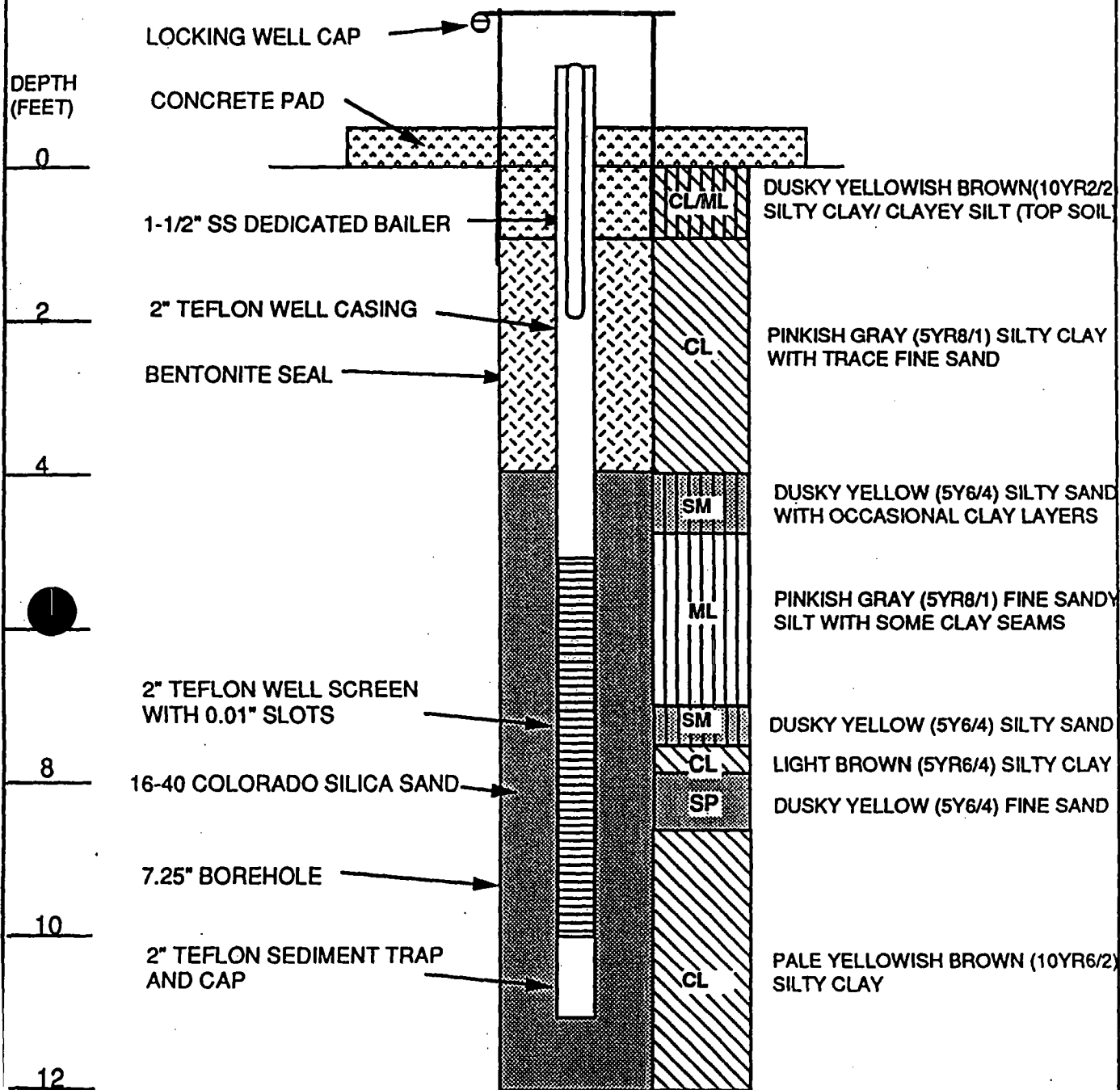
PALE YELLOWISH BROWN (10YR6/2)  
SILTY FINE SAND \ FINE SANDY SILT

PALE RED (5R6/2) TO PALE YELLOW-  
ISH BROWN (10YR6/2) SILTY CLAY

Monitoring well completed to 10.0'  
Static water level at 3.39' below  
ground on 6/13/88

MONITORING WELL  
JMM-1

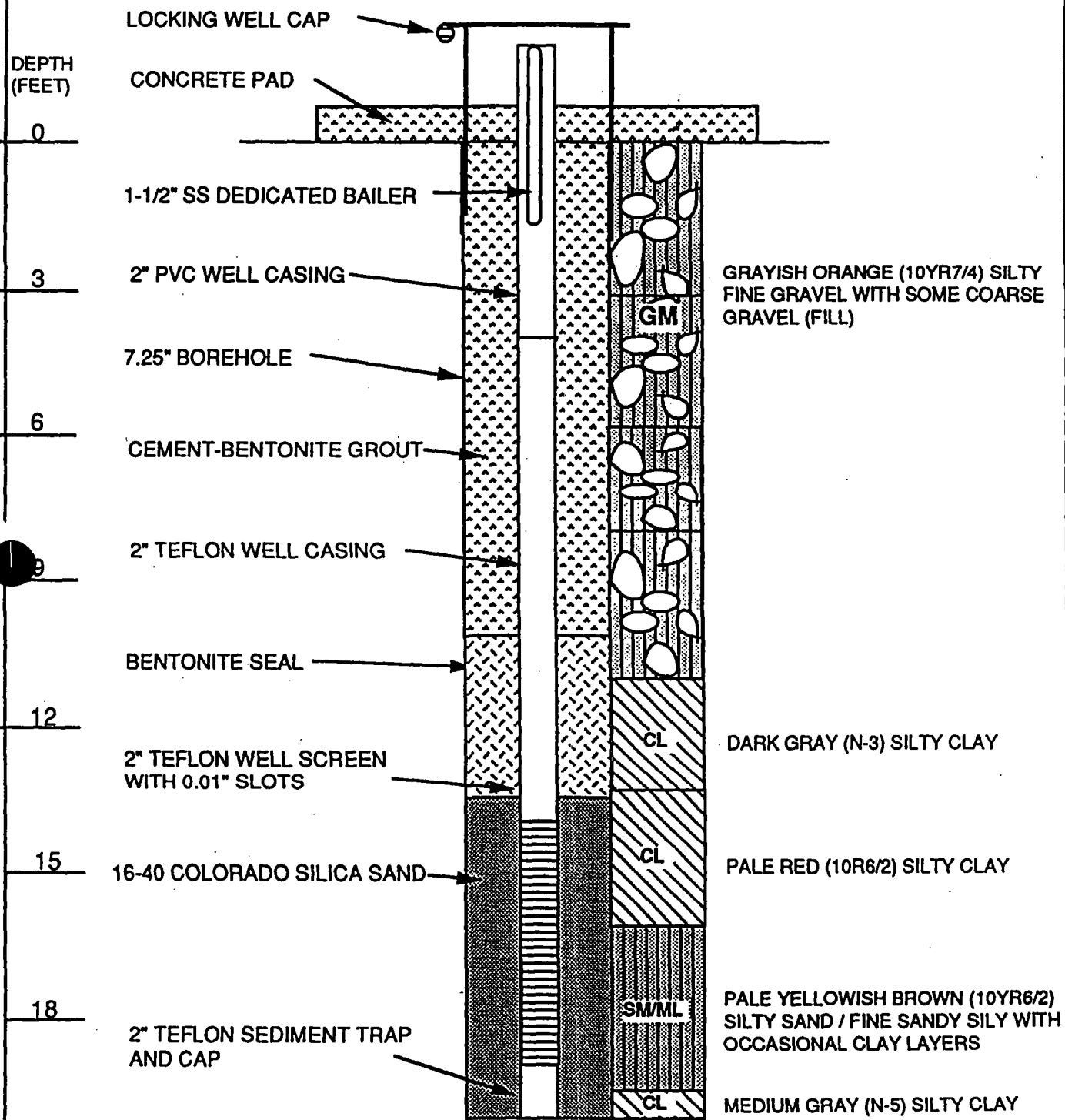




Monitoring well completed to 12.0'  
 Static water level at 4.01' below  
 ground on 6/13/88

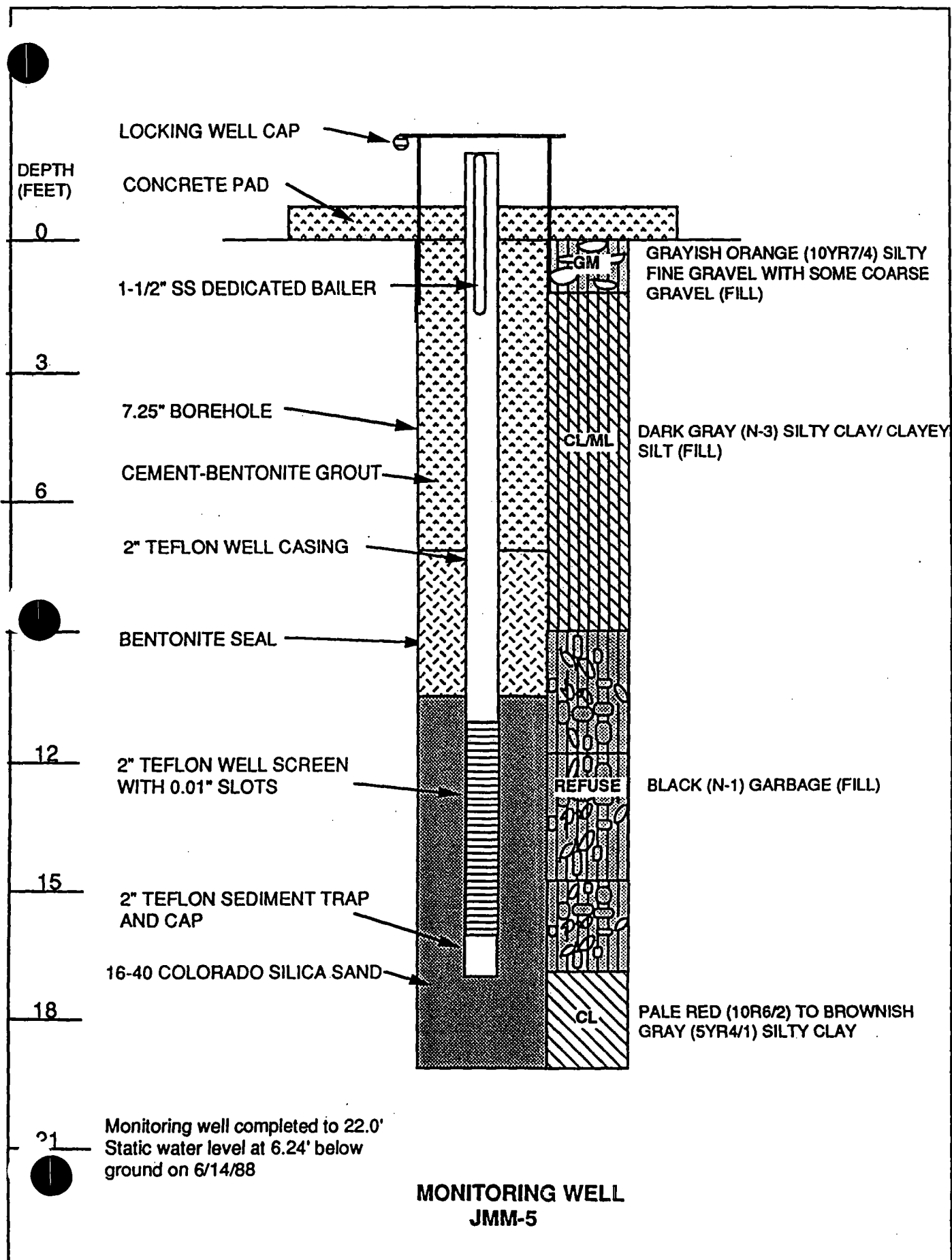
**MONITORING WELL  
 JMM-3**

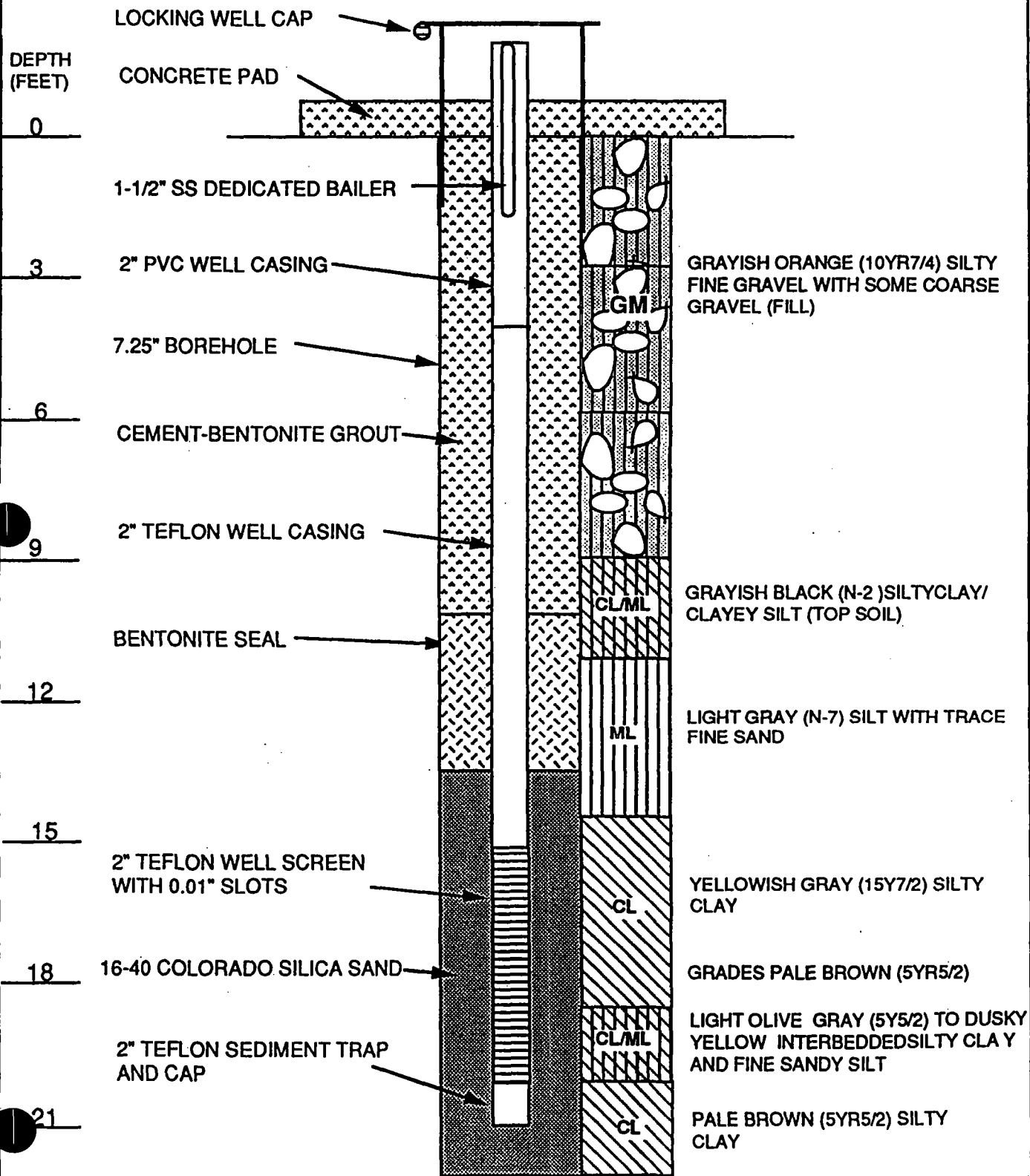




Monitoring well completed to 20.0'  
Static water level at 11.11' below  
ground on 6/14/88

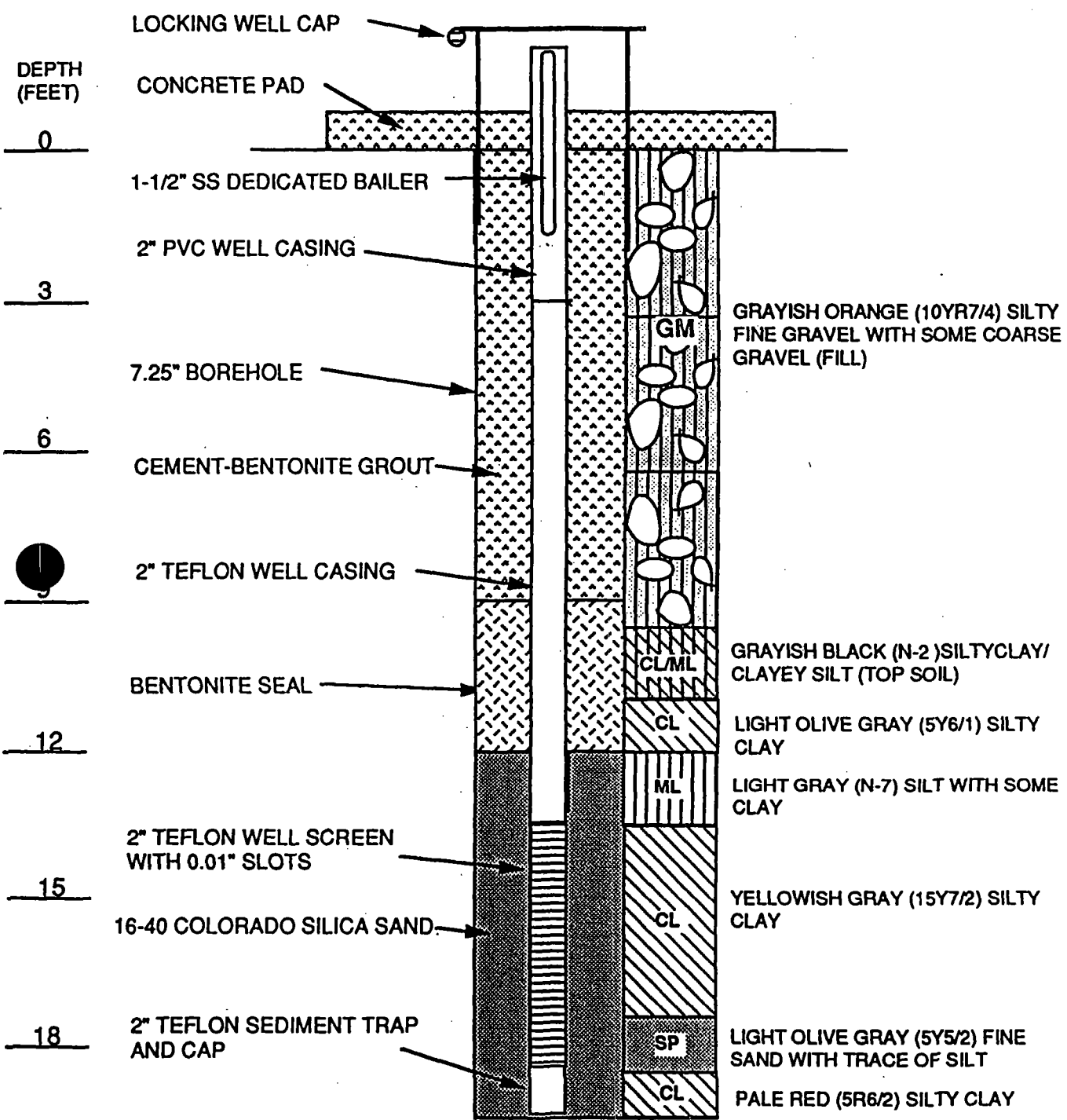
### MONITORING WELL JMM-4





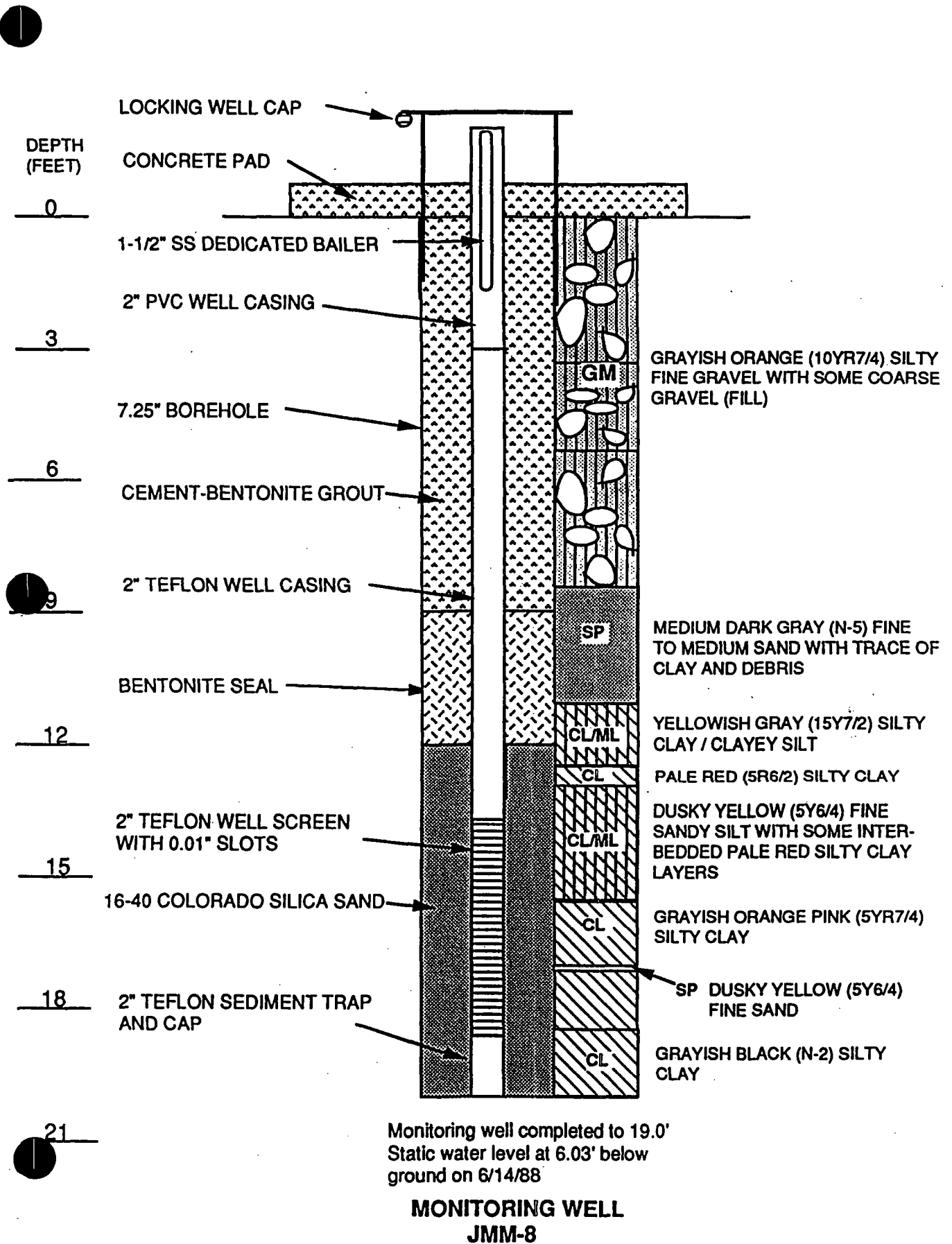
Monitoring well completed to 22.0'  
Static water level at 6.59' below  
ground on 6/16/88

**MONITORING WELL  
JMM-6**



Monitoring well completed to 19.0'  
Static water level at 5.28' below  
ground on 6/15/88

**MONITORING WELL  
JMM-7**



## BORING LOCATION

Hwy.

Curb



Project: Beautiful City landfill  
 Date Drilled: 7-16-92 Date Completed: 7-16-92  
 Logged By: Jim Burroughs  
 Water Elevation (ft.): \_\_\_\_\_  
 Date Measured: \_\_\_\_\_  
 Total Depth (ft.): 15.75  
 Diameter (in.): \_\_\_\_\_  
 Well Screen: Diameter 2" Depth 3'-5" 1/2 Slot Size \_\_\_\_\_  
 Casing: Diameter \_\_\_\_\_ Length \_\_\_\_\_ Type \_\_\_\_\_  
 Sand \_\_\_\_\_ Bentonite Seal \_\_\_\_\_ Cement Grout Seal \_\_\_\_\_

MW Monitoring Well No.: ESL-1  
 Northing: \_\_\_\_\_ Easting: \_\_\_\_\_  
 Ground Surface Elevation (ft.): \_\_\_\_\_  
 Measuring Point (MP) Elevation (ft.): \_\_\_\_\_  
 MP is Ground Surface Datum: NGVD (1929)  
 Drilling Contractor: K.I. Dalling  
 Drilling Method: 0

DEPTH (FEET)	GRAIN SIZE			MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	USCS CLASSIFICATION	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES							
0					10			GM	Gravel med sand 10% 5/3	
0.5					6				Roots - sand, silt	
1					1					
2				0	8		90		Sand lenses - per gravels, roots 10% 3/2. silt, medium - silt rounded. few clay layers Silty sand. clayey sand	
2.5					6					
3					8					
3.5					7			SM sand pink	white calcareous soil. clayey sand - small gravels	
4				0	9		45		10% 3/1 - poorly graded subangular to sub rounded.	
4.5					4				10% 4/3 - sand layers throughout clay -	
5					4			CL	contact - gray clay -	

- \*C California Split Spoon Sampler (2.5" I.D.)  
 S Standard penetration test sampler  
 c Cuttings  
 ▼ Elevation of ground water

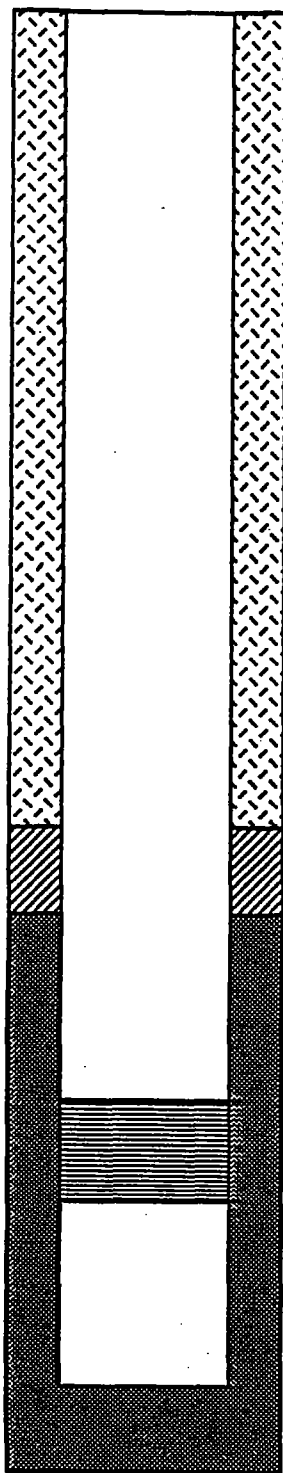
MONITORING WELL  
LOG FORM  
FIGURE 3-5

PROJECT NO.

DEPTH (FEET)	GRAIN SIZE			MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	SAMPLE RECOVERY	USCS CLASSIFICAT.	MW Monitoring Well No.: <u>BSL-1</u>	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
6.37					5					Screen begin 5-15'	
6.5				0	7		95			107R 5/3 - grey clay - more silt. some roots - clay - moist, moldable	
6.7					7						
6.8					10			SC		2" Sand lense through the clay unit ▽ moist - where sandy - clay tight	
6.9					11						
7.0				0	11		95+	CL		107R 5/4 - same clay unit as above	
7.1					4						
7.2					4					Mucous sand units about 2" thick - alternating with clays	
7.3					7						
7.4				0	7		100			107R 5/4 Stiff clay - sandy clay - medium grained - fine grained sands saturated sandy clay - 107R 5/4	
7.5					4						
7.6					5			SC		2" Sand lense - 107R 4/3 iron staining	
7.7					7						
7.8					10		100	CL		medium plastic - sandy clay	
7.9					4						
8.0					5						
8.1					7						
8.2					8		100			107R 4/3 saturated clay - sandy clay 107R 5/1	
8.3					2					Sand lenses (sandy clay throughout)	
8.4					3					is above	

TD: 15.5 feet

CL the clay (the gray clay) 107R 5/1 Saturated



(NOT TO SCALE)

WELL NUMBER BSL-1

GEOLOGIST TOM BURRUP

DATE CONSTRUCTION STARTED 7-16-96

DATE CONSTRUCTION COMPLETED 7-16-96

RELEVANT INFORMATION (Problems, corrective actions)

CASING SCHEDULE:

RISER TYPE SCHEDULE 40 PVC

RISER DIAMETER 2 INCH I.D.

RISER LENGTH 5 FEET

SCREEN TYPE SCHEDULE 40 PVC - FACTORY SLOTTED

SCREEN LENGTH 10 FEET

SCREEN DIAMETER 2 INCH I.D.

PROTECTIVE CASING TYPE, LENGTH, DIAMETER FLUSH MOUNT - 8" DIA.

0 - 1 FOOT CEMENT GROUT INTERVAL

1 FOOT TOP OF BENTONITE SEAL  
BENTONITE TYPE HYDRATED CHIPS

3 FEET TOP OF SAND PACK  
SAND SIZE 16/30

5-15 FEET SCREENED INTERVAL  
(Beginning and ending depth below ground surface)  
SLOT SIZE 0.010 INCH

CL-SC USCS CLASSIFICATION OF FORMATION MATERIAL IN SCREENED INTERVAL

15 FEET DEPTH OF CASING  
(Below ground surface)

15.5 FEET BOREHOLE DEPTH

ANNULAR VOLUME:

$$V = \pi H (R_1^2 - R_2^2)$$

WHERE:

V = Annular Volume (ft<sup>3</sup>)

$\pi = 3.142$

H = Length of interval (ft)

R<sub>1</sub> = Borehole Radius (ft)

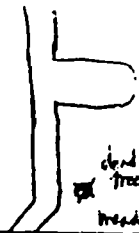
R<sub>2</sub> = Well Casing Radius (ft)

CALCULATIONS:





## BORING LOCATION

Project: Yosemite City LandfillDate Drilled: 1-16-96 Date Completed: \_\_\_\_\_Logged By: HWB

Water Elevation (ft.): \_\_\_\_\_

Date Measured: \_\_\_\_\_

Total Depth (ft.): 5' 4 1/2

Diameter (in.): \_\_\_\_\_

Well Screen: Diameter \_\_\_\_\_

Depth 4-15

Slot Size \_\_\_\_\_

Casing: Diameter \_\_\_\_\_

Length \_\_\_\_\_

Type \_\_\_\_\_

Sand \_\_\_\_\_

Bentonite Seal \_\_\_\_\_

Cement Grout Seal \_\_\_\_\_

MW Monitoring Well No.: EW-2

Northing: \_\_\_\_\_ Easting: \_\_\_\_\_

Ground Surface Elevation (ft.): \_\_\_\_\_

Measuring Point (MP) Elevation (ft.): \_\_\_\_\_

MP is Ground Surface Datum: NGVD (1929)

Drilling Contractor: EC Drilling

Drilling Method: \_\_\_\_\_

DEPTH  
(FEET)

## GRAIN SIZE

% GRAVEL

% SAND

% FINES

MAX. PID

READING (ppm)

BLOWS (6 IN.)

SAMPLE TYPE

SAMPLE

RECOVERY

USCS

CLASSIFICATION

## LITHOLOGIC DESCRIPTION

(USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)

ELEVATION  
(FEET)

0

1

2

3

4

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60

\* C California Split Spoon Sampler (2.5" I.D.)

S Standard penetration test sampler

c Cuttings

Elevation of ground water

MONITORING WELL  
LOG FORM

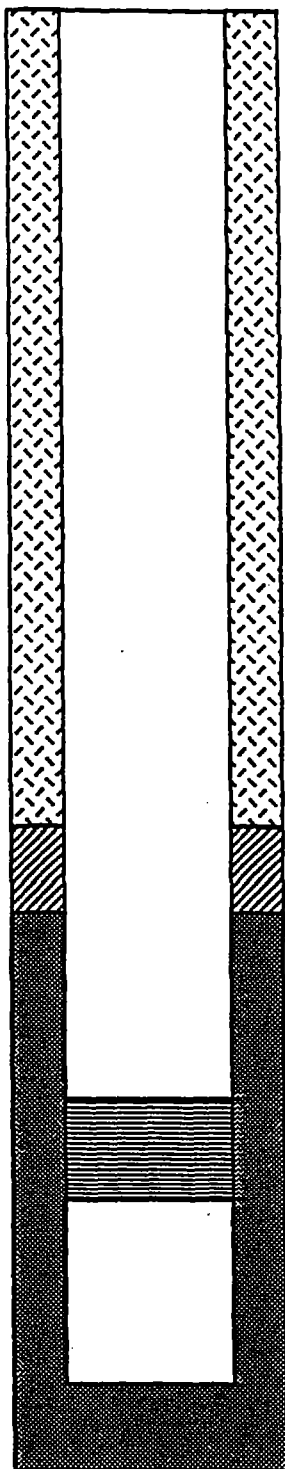
FIGURE 3-5

PROJECT NO.

DEPTH (FEET)	GRAIN SIZE			MAX PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE	SAMPLE RECOVERY	USCS CLASSIFICAT.	MW Monitoring Well No.: <u>BGL-2</u>	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
5					1					moist clay	
6				0	3		90	CL			
7					2			SM		Silty sand lens 4" 10% R <sub>5/4</sub> wet	
8					2			CL			
9					2			SM		3" silty sand lens med-fine grained sand	
10				0	2		100	CL		gray clay 10% R <sub>5/1</sub> wet, saturated	
11					3					as above	
12					3					10% R <sub>5/1</sub>	
13					5					sandy lenses throughout - clayey sand -	
14				0	7		100			gray/blue clay - wet, saturated - med plastic	
15					3		70	CL			
16					2			SM		6" clayey sand layer med-fine grained sand	
17					3						
18					4		100	CL		blue/gray clay - tight - low-med plastic	
19					3					4" sandy lens - clayey sand -	
20					3			CL		5% R <sub>5/0</sub> blue/gray clay	
21					6					tight clay, wet where more sand -	
22					5			LL		low-medium plastic	
23										as above	

To: 15'

2" well at 15' max



(NOT TO SCALE)

WELL NUMBER BSL-2  
 GEOLOGIST TOM BURRUP  
 DATE CONSTRUCTION STARTED 7-16-96  
 DATE CONSTRUCTION COMPLETED 7-16-96

RELEVANT INFORMATION (Problems, corrective actions)

CASING SCHEDULE:

RISER TYPE SCHEDULE 40 PVC  
 RISER DIAMETER 2 INCH I.D.  
 RISER LENGTH 8 FEET  
 SCREEN TYPE SCHEDULE 40 PVC - FACTORY SLOTTED  
 SCREEN LENGTH 10 FEET  
 SCREEN DIAMETER 2 INCH I.D.  
 PROTECTIVE CASING TYPE, LENGTH, DIAMETER ABOVEGROUND, STEEL 5 FT, 3 FT ABOVE GROUND, 2 FT BELOW GROUND

0-1 FOOT CEMENT GROUT INTERVAL  
1-3 FEET TOP OF BENTONITE SEAL  
 HYDRATED BENTONITE TYPE CHIPS  
3 FEET TOP OF SAND PACK  
 SAND SIZE 16/30  
5-15 FEET SCREENED INTERVAL  
 (Beginning and ending depth below ground surface)  
 SLOT SIZE 0.010  
CL-SM USCS CLASSIFICATION OF FORMATION MATERIAL IN SCREENED INTERVAL  
15 FEET DEPTH OF CASING (Below ground surface)  
15 FEET BOREHOLE DEPTH

ANNULAR VOLUME:

$$V = \pi H (R_1^2 - R_2^2)$$

WHERE:

V = Annular Volume (ft<sup>3</sup>)  
 $\pi = 3.142$   
 H = Length of Interval (ft)  
 R<sub>1</sub> = Borehole Radius (ft)  
 R<sub>2</sub> = Well Casing Radius (ft)

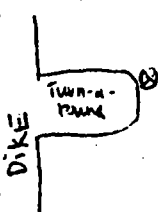
CALCULATIONS:

MONITORING WELL  
 CONSTRUCTION FORM



MONTGOMERY WATSON

## BORING LOCATION



Project:

Date Drilled: 7-16-76 Date Completed: 7-16-76

Logged By: Dan Harting

Water Elevation (ft.):

Date Measured:

Total Depth (ft.): 16' 2 1/2'

Diameter (in.): 1"

Well Screen: Diameter 2"

Depth 12-16' 2 1/2'

Slot Size

Casing: Diameter

Length

Type

Sand

Bentonite Seal

Cement Grout Seal

MW Monitoring Well No.: BSL-3

Northing:

Easting:

Ground Surface Elevation (ft.):

Measuring Point (MP) Elevation (ft.):

MP is Ground Surface Datum: NGVD (1929)

Drilling Contractor: PC Drilling

Drilling Method:

DEPTH  
(FEET)

## GRAIN SIZE

% GRAVEL

% SAND

% FINES

MAX. PID

READING (ppm)

BLOWS (6 IN.)

SAMPLE TYPE:

SAMPLE

RECOVERY

USCS

CLASSIFICATION

## LITHOLOGIC DESCRIPTION

(USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)

ELEVATION  
(FEET)

0

1

2

3

4

5

Fill - boulders, cobbles, rocks and sand

12

13

9

9

25

GP

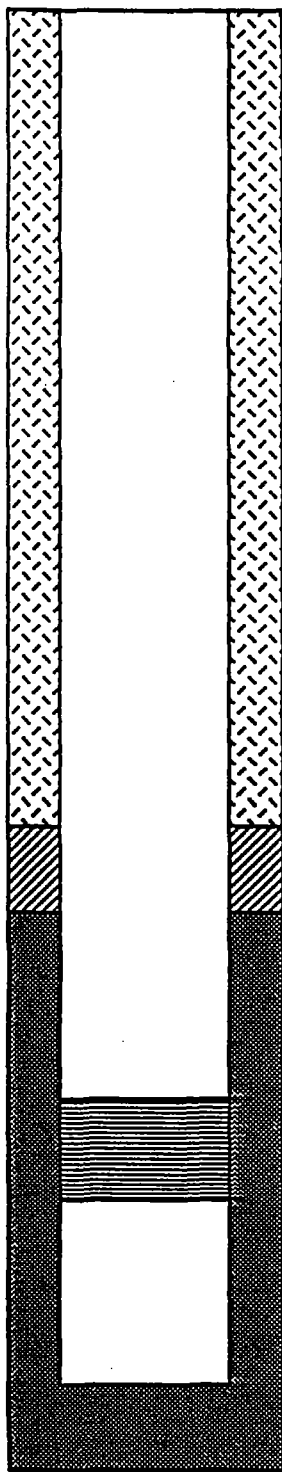
gravel and sand. fill material few fines  
large med grained

- \* C California Split Spoon Sampler (2.5" I.D.)
- S Standard penetration test sampler
- c Cuttings
- ✓ Elevation of ground water

MONITORING WELL  
LOG FORM  
FIGURE 3-5

PROJECT NO.

DEPTH (FEET)	GRAIN SIZE			MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE	SAMPLE RECOVERY	USCS CLASSIFICAT.	MW Monitoring Well No.: <u>B5L-3</u>	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	ELEVATION (FEET)
	% GRAVEL	% SAND	% FINES								
5											
6					1			GP		Wet sand, gravel and silt 10% R/S	
7					1			CL		Clayey. clayey sand - high humus content PT, roots, organic	
8					1			CL		blue/gray, clay - roots, not so rich as above	
9					1			CL		as above	
10					1			SM		4" Sand, not, saturated rich in humus organic soil	
11					1			CL		as above	
12					1			CL		blue/gray clay - roots throughout moist - sand lenses -	
13					1			CL		as above	
14					1			CL		as above	
15					1			CL		as above	
16					1			CL		as above	
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94					1			CL		as above	
95					1			CL		as above	
96					1			CL		as above	
97					1			CL		as above	
98					1			CL		as above	
99					1			CL		as above	
100					1			CL		as above	



(NOT TO SCALE)

WELL NUMBER BSL-3

GEOLOGIST TOM BURRUP

DATE CONSTRUCTION STARTED 7-16-96

DATE CONSTRUCTION COMPLETED 7-16-96

RELEVANT INFORMATION (Problems, corrective actions)

CASING SCHEDULE:

RISER TYPE SCHEDULE 40 PVC

RISER DIAMETER 2 INCH I.D.

RISER LENGTH 8.5 FEET, 2.5 FOOT STICK-UP ABOVE GROUND SURFACE

SCREEN TYPE SCHEDULE 40 PVC - FACTORY SLOTTED

SCREEN LENGTH 10 FEET

SCREEN DIAMETER 2 INCH I.D.

PROTECTIVE CASING TYPE, LENGTH, DIAMETER 5 FEET, 8" DIA

0 - 1 FOOT CEMENT GROUT INTERVAL

1 FOOT TOP OF BENTONITE SEAL  
BENTONITE TYPE HYDRATED CHIPS

4 FEET TOP OF SAND PACK  
SAND SIZE 16/30

6 - 16 FEET SCREENED INTERVAL  
(Beginning and ending depth below ground surface)  
SLOT SIZE 0.020 INCH

CL-SM USCS CLASSIFICATION OF FORMATION MATERIAL IN SCREENED INTERVAL

16 FEET DEPTH OF CASING  
(Below ground surface)

16 FEET BOREHOLE DEPTH

ANNULAR VOLUME:

$$V = \pi H (R_1^2 - R_2^2)$$

WHERE:

V = Annular Volume (ft<sup>3</sup>)

$\pi = 3.142$

H = Length of Interval (ft)

R<sub>1</sub> = Borehole Radius (ft)

R<sub>2</sub> = Well Casing Radius (ft)

CALCULATIONS:

MONITORING WELL  
CONSTRUCTION FORM



MONTGOMERY WATSON

PROJECT NO.

# CITY OF BOUNTIFUL WELL DEVELOPMENT

WELL NAME B5L-1 Sampling Personnel Tom Purney  
Date 8-6-96 Weather Sunny mostly, some clouds, warm

MEASUREMENT SUMMARY: 14.63 9.19 x .17 = 1.56 gal x 24 gallons = 3.15 gallons + 1 batch hole  
Well Diameter: 2" PVC Total Casing Depth: 2" PVC Column Height: 9.19  
Depth to water: 5.47 Time: 8:30 Measuring point: 100-N Depth of Product: \_\_\_\_\_  
Final pH 7.33 Final SC 2.25 Final Temp(°C) 18.4 Product Thickness: \_\_\_\_\_

## DEVELOPMENT SUMMARY:

Casing evacuated with: \_\_\_\_\_ Dedicated Pump \_\_\_\_\_ Portable Submersible Pump ☒ Bailer ☒

Pump started at: 10:20 Stopped at: 11:22 Total gallons: 53 gallons

Time	pH	SC	Temp	Volume removed (gal.)	Comments	
8:45	7.36	2.23	15.4	NTN 7999	Initial water	Initial TD = 14.66
9:15	7.49	2.31	16.6	5 gallons	NTN 7999	DO: 2.01 Sandy, silty
9:35	7.59	2.25	16.2	9 gallons	NTN 7999	DO: 3.26
9:50	7.53	2.24	16.4	14 gallons	NTN 7999	DO: 2.64
10:05	7.49	2.23	16.4	19 gallons	NTN 7999	DO: 2.48 silty
10:15	7.55	2.21	16.0	23 gallons	NTN 7999	DO: 3.13 10:20 pump on
10:31	7.47	2.26	19.3	28 gallons	NTN = 690	DO: 1.17 1/2 gpm murky
10:42	7.47	2.26	19.5	33 gallons	NTN = 80	DO: 0.96
10:52	7.42	2.26	19.5	38 gallons	NTN = 27	DO: 1.15 clear
11:02	7.36	2.24	19.0	43 gallons	NTN = 0	DO: 0.75
* 11:12	7.33	2.25	19.0	48 gallons	NTN = 0	DO: 0.62
11:22	7.31	2.24	18.4	53 gallons	NTN = 410	DO: 0.73 (level of pump lowered - turbidity elevated.)
	Ending depth to water			5.72		
	Ending total depth			14.63		

INSTRUMENTATION: pH meter: Hanna Calibrated with buffers 4 \_\_\_\_\_ 7 ☒ 10 ☒

Hanna SC meter: Hanna Calibrated with standard solution 2000 µmhos/cm

PROJECT NO. BARD

# CITY OF BOUNTIFUL WELL DEVELOPMENT

WELL NAME 511-2 Sampling Personnel Tom Burmp  
Date 8-6-96 Weather Sunny, warm

## MEASUREMENT SUMMARY:

Well Diameter: 1" PVL Total Casing Depth: 16.95 Column Height: 10.27  
Depth to water: 5.68 Time: 11:50 Measuring point: PDL-N Depth of Product: \_\_\_\_\_  
Final pH 7.15 Final SC 36.8 Final Temp(°C) 16.1 Product Thickness: \_\_\_\_\_

## DEVELOPMENT SUMMARY:

Casing evacuated with: Dedicated Pump \_\_\_\_\_ Portable Submersible Pump ☒ Bailer ☒  
Pump started at: 12:54 Stopped at: 13:46 Total gallons: 52+ gallons

Time	pH	SC	Temp	Volume removed (gal.)	Comments
11:55	7.27	36.0	14.2	First water	NTU 7999 DO = 0.98
12:10	7.24	36.3	14.0	5 1/2 gallons	NTU 7999 DO = 2.93
12:25	7.25	36.3	13.7	12 gallons	NTU 7999 DO = 2.54
12:35	7.26	36.6	13.6	16 gallons	NTU 7999 DO = 2.49
12:54	7.25	36.6	16.6	25 gallons	NTU 7999 DO = 2.69 12:54 pump on
13:04	7.18	36.8	16.1	32 gallons	NTU: 372 DO = 3.40 2 1/2 gpm
13:16	7.24	36.9	16.1	37 gallons	NTU: 77 DO = 3.52 yellowish tint
13:26	7.23	36.9	16.2	42 gallons	NTU: 0 DO = 3.30 yellowish color
13:30	7.22	36.9	16.3	47 gallons	NTU: 0 DO = 3.10
13:46	7.15	36.8	16.1	52 gallons	NTU: 0 DO = 3.57
		Final Depth to Water = 7.77			
		Final Total Depth = 16.96			

INSTRUMENTATION: pH meter: Hanna Calibrated with buffers 4 \_\_\_\_\_ 7 ☒ 10 ☒  
SC meter: Hanna Calibrated with standard solution 2000 umhos/cm

PROJECT NO. BARD



# CITY OF BOUNTIFUL WELL DEVELOPMENT

WELL NAME h2c-3 Sampling Personnel Tom Burrup  
Date 8-6-96 Weather Sunny, warm

## MEASUREMENT SUMMARY:

Well Diameter: 2" PVC Total Casing Depth: 18.00 Column Height: 10.13  
Depth to water: 9.55 Time: \_\_\_\_\_ Measuring point: SDC-N Depth of Product: \_\_\_\_\_  
Final pH 7.46 Final SC 61.1 Final Temp(°C) 18.2 Product Thickness: \_\_\_\_\_

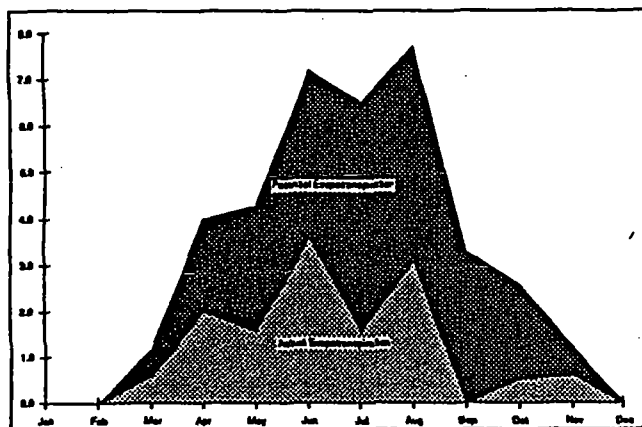
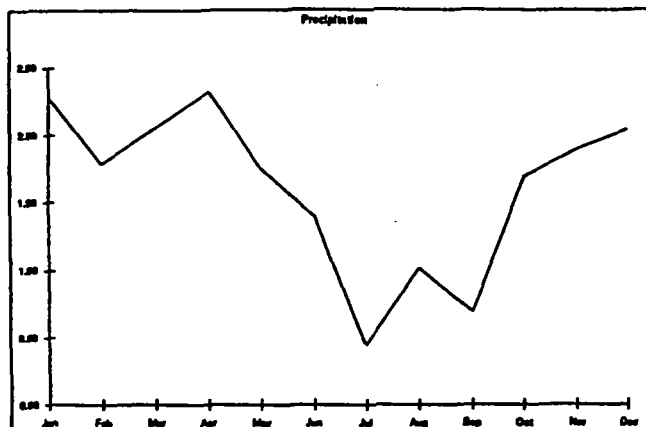
## DEVELOPMENT SUMMARY:

Casing evacuated with: Dedicated Pump \_\_\_\_\_ Portable Submersible Pump 1 Bailer 1  
Pump started at: 15:54 Stopped at: 16:59 Total gallons: 53 gallons

Time	pH	SC	Temp	Volume removed (gal.)	Comments
15:10	7.92	62.1 <sup>mm</sup>	18.5	First water	NTN 7999 DO = 1.61
15:20	7.39	52.3	17.3	5 gallons	NTN 7999 DO = 2.25 Smoky, silty
15:30	7.51	61.8	15.5	10 gallons	NTN 7999 DO = 2.61
15:40	7.57	62.1	15.6	17 gallons	NTN 7999 DO = 3.39 fines
15:50	7.58	66.1	14.8	24 gallons	NTN 7999 DO = 3.62
<sup>Pump on</sup> 15:54	7.59	63.3	17.2	29 gallons	NTN 7999 DO = 3.10 1/4 gpm
16:02	7.56	62.7	17.5	34 gallons	NTN: 142 DO = 2.14 water clearer
16:12	7.50	62.4	17.8	39 gallons	NTN: 1 DO = 2.38 yellowish tint
16:22	7.48	61.2	18.1	44 gallons	NTN: 0 DO = 2.15 " "
16:32	7.49	61.3	17.9	49 gallons	NTN: 0 DO = 2.31 clear/yellow
16:37	7.46	61.1	18.2	53 gallons	NTN: 19 DO = 2.18
		Final depth to Water =	10.69		
		Final total Depth =	18.69		

INSTRUMENTATION: pH meter: Hanna Calibrated with buffers 4 \_\_\_\_\_ 7 ✓ 10 ✓  
SC meter: Hanna Calibrated with standard solution 2000  $\mu$ mhos/cm

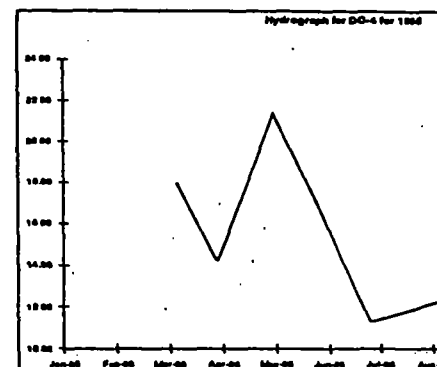
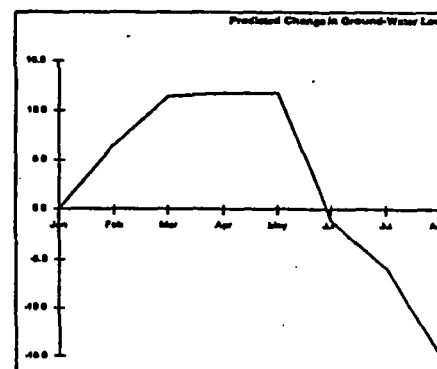
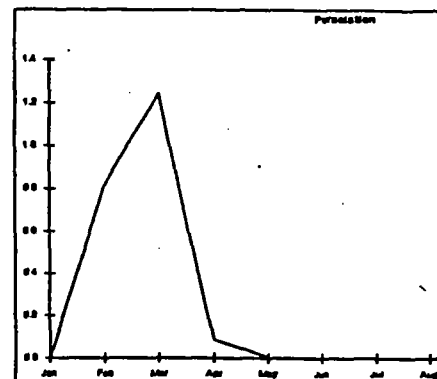
PROJECT NO. BARD



#### WATER BALANCE PARAMETERS

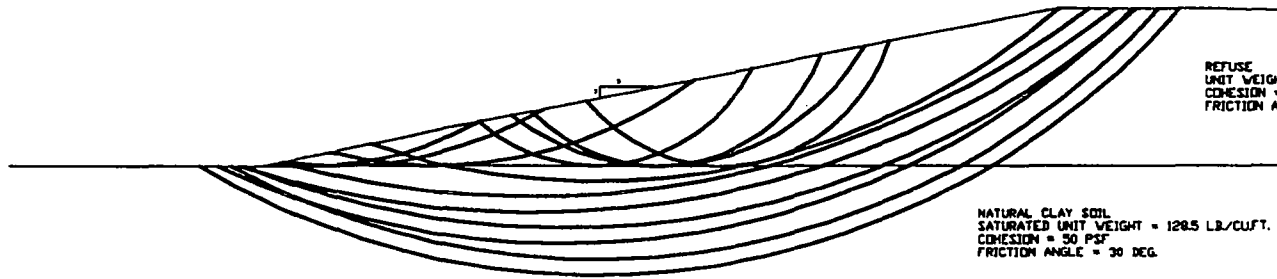
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean monthly temp (°F)	23.1	23.5	41.0	50.8	58.0	66.4	73.6	72.9	64.7	52.7	38.6	22.4
Monthly precipitation	2.28	1.79	2.06	2.32	1.78	1.41	0.45	1.02	0.69	1.88	1.99	2.04
Potential evapotranspiration	0.0	0.0	0.0	2.0	2.7	2.8	4.9	4.5	3.3	2.1	0.6	0.0
Runoff	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.2	0.2	0.2
Moisture available for infiltration	2.1	1.6	1.8	2.1	1.6	1.3	0.4	0.9	0.6	1.5	1.7	1.8
Infiltration loss PWT	2.1	1.6	1.8	2.1	1.6	1.3	0.4	0.9	0.6	1.5	1.7	1.8
Accumulated potential water loss	0.0	0.0	0.0	0.0	-1.1	-3.4	-7.9	-11.5	-14.3	-14.9	0.0	0.0
Soil moisture storage	1.2	2.0	2.0	2.0	2.0	-1.2	-2.4	-4.6	-2.5	-2.9	1.0	1.1
Change in storage	0.0	0.8	0.0	0.0	0.0	-3.2	-1.2	-2.2	0.5	1.0	2.2	1.1
Actual evapotranspiration	0.0	0.0	0.6	2.0	1.6	3.6	1.6	2.1	0.9	0.6	0.6	0.0
Percolation	0.0	0.0	1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Change in ground-water level	0.0	0.4	11.4	11.5	11.5	-1.0	-5.8	-14.4	-11.4	-7.4	1.4	6.8

All values in inches unless otherwise noted.



ESTIMATED WATER BALANCE FOR THE BARD LANDFILL

**APPENDIX G**  
**SLOPE STABILITY INFORMATION**

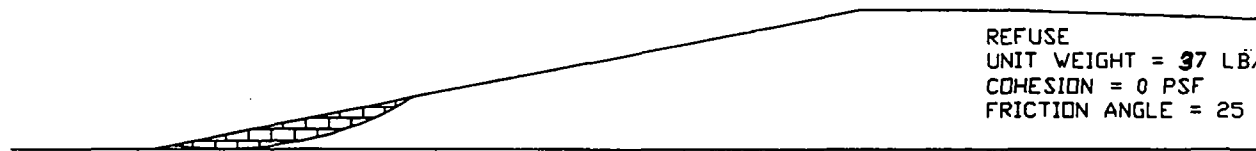


**BOUNTIFUL CITY ENGINEERING**  
**BO**

CRITICAL FAILURE  
BY BISHOP  
AND ORDINARY

DESIGN	MWF	BO
DRAW	MWF	FILE
CHECK		CN

MINIMUM FACTOR OF SAFETY = 2.



NATURAL CLAY SOIL  
SATURATED UNIT WEIGHT = 128.5 LB/FT<sup>3</sup>  
COHESION = 50 PSF  
FRICTION ANGLE = 30 DEG.

BOUNTIFUL CITY  
BO

Critical F  
Bishop M

DESIGN	MWF	BO
DRAW	MWF	PL
CHECK		

1 SLOPE STABILITY ANALYSIS  
BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

CONTROL DATA

NUMBER OF SPECIFIED CENTERS 0  
NUMBER OF DEPTH LIMITING TANGENTS 8  
NUMBER OF VERTICAL SECTIONS 4  
NUMBER OF SOIL LAYER BOUNDARIES 3  
NUMBER OF PORE PRESSURE LINES 1  
NUMBER OF POINTS DEFINING COHESION PROFILE 0

SEISMIC COEFFICIENT S1,S2 = 0.00 0.00 No Seismic Force

UNIT WEIGHT OF WATER = 62.40

SEARCH IS BASED ON BISHOP MODIFIED METHOD

SEARCH STARTS AT CENTER ( 650.0, 1.0),WITH FINAL GRID OF 20.0

ALL CIRCLES TANGENT TO DEPTH, 110.0, 120.0, 130.0, 140.0, 150.0, 160.0, 170.0, 180.0

GEOMETRY

SECTIONS 300.0 400.0 900.01500.0

T. CRACKS 10.0 10.0 110.0 110.0  
W IN CRACK 10.0 10.0 110.0 110.0  
BOUNDARY 1 10.0 10.0 110.0 110.0  
BOUNDARY 2 110.0 110.0 110.0 110.0  
BOUNDARY 3 280.0 280.0 280.0 280.0

SOIL PROPERTIES

LAYER	COHESION	FRICTION ANGLE	DENSITY	PORE
PRESSURE FACTOR				
1	0.0	25.0	37.0	0.0
2	50.0	30.0	110.0	0.0

PORE PRESSURE DATA

COORDINATES OF EQUI-PRESSURE LINES

SECTIONS 300.0 400.0 900.01500.0  
LINE 1 95.0 96.0 110.0 110.0

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	110.0	109.0	650.0	1.0	3.298	2.669
2	110.0	109.0	610.0	1.0	3.563	2.791
3	110.0	149.0	650.0	-39.0	2.920	2.497

4	110.0	109.0	690.0	1.0	3.064	2.562
5	110.0	69.0	650.0	41.0	4.446	3.202
6	110.0	149.0	610.0	-39.0	3.075	2.567
7	110.0	189.0	650.0	-79.0	2.732	2.412
8	110.0	149.0	690.0	-39.0	2.775	2.432
9	110.0	189.0	610.0	-79.0	2.841	2.461
10	110.0	229.0	650.0	-119.0	2.622	2.364
11	110.0	189.0	690.0	-79.0	2.631	2.368
12	110.0	229.0	630.0	-119.0	2.662	2.381
13	110.0	249.0	650.0	-139.0	2.583	2.347
14	110.0	229.0	670.0	-119.0	2.583	2.347
15	110.0	209.0	650.0	-99.0	2.670	2.385
16	110.0	249.0	630.0	-139.0	2.618	2.362
17	110.0	269.0	650.0	-159.0	2.550	2.333
18	110.0	249.0	670.0	-139.0	2.548	2.332
19	110.0	269.0	670.0	-159.0	2.518	2.320
20	110.0	249.0	690.0	-139.0	2.513	2.317
21	110.0	229.0	670.0	-119.0	2.583	2.347
22	110.0	269.0	690.0	-159.0	2.488	2.307
23	110.0	249.0	710.0	-139.0	2.481	2.304
24	110.0	229.0	690.0	-119.0	2.545	2.331
25	110.0	269.0	710.0	-159.0	2.459	2.295
26	110.0	249.0	730.0	-139.0	2.450	2.292
27	110.0	229.0	710.0	-119.0	2.508	2.315
28	110.0	269.0	730.0	-159.0	2.431	2.285
29	110.0	249.0	750.0	-139.0	2.421	2.281
30	110.0	229.0	730.0	-119.0	2.472	2.301
31	110.0	269.0	750.0	-159.0	2.404	2.274
32	110.0	249.0	770.0	-139.0	2.391	2.269
33	110.0	229.0	750.0	-119.0	2.439	2.288
34	110.0	269.0	770.0	-159.0	2.377	2.264
35	110.0	249.0	790.0	-139.0	2.364	2.260
36	110.0	229.0	770.0	-119.0	2.407	2.275
37	110.0	269.0	790.0	-159.0	2.355	2.258
38	110.0	249.0	810.0	-139.0	2.340	2.253
39	110.0	229.0	790.0	-119.0	2.376	2.264
40	110.0	269.0	810.0	-159.0	2.333	2.251
41	110.0	249.0	830.0	-139.0	2.321	2.251
42	110.0	229.0	810.0	-119.0	2.350	2.256
43	110.0	269.0	830.0	-159.0	2.317	2.250
44	110.0	249.0	850.0	-139.0	2.309	2.254
45	110.0	229.0	830.0	-119.0	2.326	2.251
46	110.0	269.0	850.0	-159.0	2.307	2.255
47	110.0	249.0	870.0	-139.0	2.306	2.266
48	110.0	229.0	850.0	-119.0	2.310	2.252
49	110.0	269.0	870.0	-159.0	2.307	2.270
50	110.0	249.0	890.0	-139.0	2.330	2.304
51	110.0	229.0	870.0	-119.0	2.305	2.264

SEARCH IS ABANDONED AFTER 51 CIRCLES

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	120.0	259.0	870.0	-139.0	3.541	3.381
2	120.0	239.0	830.0	-119.0	3.073	2.904
3	120.0	279.0	870.0	-159.0	3.504	3.354

4	120.0	239.0	910.0	-119.0	6.004	5.744
5	120.0	199.0	870.0	-79.0	3.661	3.461
6	120.0	239.0	790.0	-119.0	2.967	2.771
7	120.0	279.0	830.0	-159.0	3.012	2.866
8	120.0	199.0	830.0	-79.0	3.148	2.946
9	120.0	239.0	770.0	-119.0	2.946	2.734
10	120.0	259.0	790.0	-139.0	2.934	2.752
11	120.0	239.0	810.0	-119.0	3.006	2.824
12	120.0	219.0	790.0	-99.0	3.005	2.791
13	120.0	259.0	770.0	-139.0	2.911	2.715
14	120.0	279.0	790.0	-159.0	2.905	2.735
15	120.0	259.0	810.0	-139.0	2.973	2.805
16	120.0	279.0	770.0	-159.0	2.882	2.699
17	120.0	299.0	790.0	-179.0	2.881	2.722
18	120.0	279.0	810.0	-159.0	2.942	2.785
19	120.0	299.0	770.0	-179.0	2.857	2.686
20	120.0	319.0	790.0	-199.0	2.860	2.710
21	120.0	299.0	810.0	-179.0	2.919	2.771
22	120.0	299.0	750.0	-179.0	2.843	2.659
23	120.0	319.0	770.0	-199.0	2.835	2.674
24	120.0	279.0	770.0	-159.0	2.882	2.699
25	120.0	319.0	750.0	-199.0	2.820	2.647
26	120.0	339.0	770.0	-219.0	2.816	2.664
27	120.0	319.0	790.0	-199.0	2.860	2.710
28	120.0	339.0	750.0	-219.0	2.800	2.637
29	120.0	359.0	770.0	-239.0	2.797	2.652
30	120.0	339.0	790.0	-219.0	2.841	2.699
31	120.0	359.0	750.0	-239.0	2.781	2.626
32	120.0	379.0	770.0	-259.0	2.780	2.642
33	120.0	359.0	790.0	-239.0	2.822	2.688
34	120.0	379.0	750.0	-259.0	2.763	2.616
35	120.0	399.0	770.0	-279.0	2.764	2.633
36	120.0	379.0	790.0	-259.0	2.805	2.677
37	120.0	379.0	730.0	-259.0	2.753	2.596
38	120.0	399.0	750.0	-279.0	2.748	2.608
39	120.0	359.0	750.0	-239.0	2.781	2.626
40	120.0	399.0	730.0	-279.0	2.737	2.587
41	120.0	419.0	750.0	-299.0	2.734	2.600
42	120.0	399.0	770.0	-279.0	2.764	2.633
43	120.0	419.0	730.0	-299.0	2.723	2.579
44	120.0	439.0	750.0	-319.0	2.722	2.593
45	120.0	419.0	770.0	-299.0	2.751	2.625
46	120.0	439.0	730.0	-319.0	2.710	2.572
47	120.0	459.0	750.0	-339.0	2.710	2.586
48	120.0	439.0	770.0	-319.0	2.739	2.618
49	120.0	439.0	710.0	-319.0	2.703	2.557
50	120.0	459.0	730.0	-339.0	2.698	2.566
51	120.0	419.0	730.0	-299.0	2.723	2.579

SEARCH IS ABANDONED AFTER 51 CIRCLES

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	130.0	449.0	730.0	-319.0	2.934	2.748
2	130.0	429.0	690.0	-299.0	2.931	2.719
3	130.0	469.0	730.0	-339.0	2.918	2.740



4	130.0	429.0	770.0	-299.0	3.003	2.823
5	130.0	389.0	730.0	-259.0	2.992	2.777
6	130.0	469.0	710.0	-339.0	2.901	2.715
7	130.0	489.0	730.0	-359.0	2.903	2.732
8	130.0	469.0	750.0	-339.0	2.941	2.769
9	130.0	449.0	730.0	-319.0	2.934	2.748
10	130.0	469.0	690.0	-339.0	2.914	2.721
11	130.0	489.0	710.0	-359.0	2.892	2.713
12	130.0	449.0	710.0	-319.0	2.919	2.724
13	130.0	489.0	690.0	-359.0	2.913	2.727
14	130.0	509.0	710.0	-379.0	2.885	2.713
15	130.0	489.0	730.0	-359.0	2.903	2.732
16	130.0	509.0	690.0	-379.0	2.918	2.739
17	130.0	529.0	710.0	-399.0	2.885	2.720
18	130.0	509.0	730.0	-379.0	2.888	2.723
19	130.0	529.0	690.0	-399.0	2.922	2.751
20	130.0	529.0	730.0	-399.0	2.876	2.717
21	130.0	489.0	730.0	-359.0	2.903	2.732
22	130.0	489.0	690.0	-359.0	2.913	2.727
23	130.0	549.0	730.0	-419.0	2.862	2.709
24	130.0	529.0	750.0	-399.0	2.899	2.745
25	130.0	549.0	710.0	-419.0	2.886	2.727
26	130.0	569.0	730.0	-439.0	2.859	2.711
27	130.0	549.0	750.0	-419.0	2.886	2.737
28	130.0	569.0	710.0	-439.0	2.891	2.738
29	130.0	589.0	730.0	-459.0	2.866	2.722
30	130.0	569.0	750.0	-439.0	2.874	2.730
31	130.0	589.0	710.0	-459.0	2.899	2.750
32	130.0	589.0	750.0	-459.0	2.867	2.728
33	130.0	549.0	750.0	-419.0	2.886	2.737
34	130.0	549.0	710.0	-419.0	2.886	2.727

F.S. MINIMUM= 2.859 FOR THE CIRCLE OF CENTER ( 730.0,-439.0)  
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	140.0	579.0	730.0	-439.0	3.077	2.884
2	140.0	559.0	670.0	-419.0	3.227	3.010
3	140.0	599.0	710.0	-459.0	3.117	2.926
4	140.0	559.0	750.0	-419.0	3.093	2.896
5	140.0	519.0	710.0	-379.0	3.093	2.873
6	140.0	559.0	690.0	-419.0	3.154	2.944
7	140.0	539.0	710.0	-399.0	3.095	2.884
8	140.0	579.0	690.0	-439.0	3.155	2.954
9	140.0	579.0	730.0	-439.0	3.077	2.884
10	140.0	539.0	730.0	-399.0	3.076	2.869
11	140.0	539.0	690.0	-399.0	3.142	2.924
12	140.0	539.0	750.0	-399.0	3.101	2.897
13	140.0	519.0	730.0	-379.0	3.081	2.866
14	140.0	559.0	710.0	-419.0	3.100	2.896
15	140.0	559.0	750.0	-419.0	3.093	2.896
16	140.0	519.0	750.0	-379.0	3.114	2.903
17	140.0	519.0	710.0	-379.0	3.093	2.873

F.S. MINIMUM= 3.076 FOR THE CIRCLE OF CENTER ( 730.0,-399.0)  
 1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	150.0	549.0	730.0	-399.0	3.289	3.028
2	150.0	529.0	670.0	-379.0	3.413	3.126
3	150.0	569.0	710.0	-419.0	3.309	3.054
4	150.0	529.0	750.0	-379.0	3.328	3.056
5	150.0	489.0	710.0	-339.0	3.293	2.997
6	150.0	529.0	690.0	-379.0	3.343	3.064
7	150.0	509.0	710.0	-359.0	3.291	3.007
8	150.0	549.0	690.0	-399.0	3.351	3.082
9	150.0	549.0	730.0	-399.0	3.289	3.028
10	150.0	509.0	730.0	-359.0	3.290	3.009
11	150.0	509.0	690.0	-359.0	3.334	3.043
12	150.0	569.0	730.0	-419.0	3.294	3.041
13	150.0	549.0	750.0	-399.0	3.320	3.056
14	150.0	569.0	710.0	-419.0	3.309	3.054
15	150.0	569.0	750.0	-419.0	3.321	3.067
16	150.0	529.0	750.0	-379.0	3.328	3.056
17	150.0	529.0	710.0	-379.0	3.294	3.020

F.S. MINIMUM= 3.289 FOR THE CIRCLE OF CENTER ( 730.0,-399.0)  
 1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	160.0	559.0	730.0	-399.0	3.513	3.188
2	160.0	539.0	670.0	-379.0	3.618	3.272
3	160.0	579.0	710.0	-419.0	3.533	3.219
4	160.0	539.0	750.0	-379.0	3.550	3.210
5	160.0	499.0	710.0	-339.0	3.492	3.131
6	160.0	499.0	690.0	-339.0	3.526	3.161
7	160.0	519.0	710.0	-359.0	3.499	3.152
8	160.0	499.0	730.0	-339.0	3.504	3.143
9	160.0	479.0	710.0	-319.0	3.495	3.119
10	160.0	519.0	690.0	-359.0	3.534	3.183
11	160.0	519.0	730.0	-359.0	3.502	3.154
12	160.0	479.0	730.0	-319.0	3.509	3.133
13	160.0	479.0	690.0	-319.0	3.522	3.142

F.S. MINIMUM= 3.492 FOR THE CIRCLE OF CENTER ( 710.0,-339.0)  
 1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
--------	---------	--------	------------	------------	------------	---------

1	170.0	509.0	710.0	-339.0	3.706	3.273
2	170.0	489.0	650.0	-319.0	3.879	3.409
3	170.0	529.0	690.0	-359.0	3.740	3.322
4	170.0	489.0	730.0	-319.0	3.721	3.268
5	170.0	449.0	690.0	-279.0	3.719	3.228
6	170.0	489.0	670.0	-319.0	3.785	3.326
7	170.0	469.0	690.0	-299.0	3.718	3.247
8	170.0	509.0	670.0	-339.0	3.792	3.352
9	170.0	509.0	710.0	-339.0	3.706	3.273
10	170.0	469.0	710.0	-299.0	3.701	3.233
11	170.0	469.0	670.0	-299.0	3.779	3.300
12	170.0	469.0	730.0	-299.0	3.726	3.254
13	170.0	449.0	710.0	-279.0	3.703	3.214
14	170.0	489.0	690.0	-319.0	3.721	3.270
15	170.0	489.0	730.0	-319.0	3.721	3.268
16	170.0	449.0	730.0	-279.0	3.740	3.247
17	170.0	449.0	690.0	-279.0	3.719	3.228

F.S. MINIMUM= 3.701 FOR THE CIRCLE OF CENTER ( 710.0,-299.0)  
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	180.0	479.0	710.0	-299.0	3.908	3.358
2	180.0	459.0	650.0	-279.0	4.063	3.470
3	180.0	499.0	690.0	-319.0	3.930	3.401
4	180.0	459.0	730.0	-279.0	3.943	3.363
5	180.0	419.0	690.0	-239.0	3.931	3.302
6	180.0	459.0	670.0	-279.0	3.970	3.390
7	180.0	439.0	690.0	-259.0	3.919	3.319
8	180.0	479.0	670.0	-299.0	3.973	3.418
9	180.0	479.0	710.0	-299.0	3.908	3.358
10	180.0	439.0	710.0	-259.0	3.914	3.315
11	180.0	439.0	670.0	-259.0	3.971	3.364
12	180.0	499.0	710.0	-319.0	3.913	3.384
13	180.0	479.0	730.0	-299.0	3.940	3.384
14	180.0	499.0	690.0	-319.0	3.930	3.401
15	180.0	499.0	730.0	-319.0	3.937	3.401
16	180.0	459.0	730.0	-279.0	3.943	3.363
17	180.0	459.0	690.0	-279.0	3.919	3.347

F.S. MINIMUM= 3.908 FOR THE CIRCLE OF CENTER ( 710.0,-299.0)

1 SLOPE STABILITY ANALYSIS  
BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

CONTROL DATA

NUMBER OF SPECIFIED CENTERS 0  
 NUMBER OF DEPTH LIMITING TANGENTS 8  
 NUMBER OF VERTICAL SECTIONS 4  
 NUMBER OF SOIL LAYER BOUNDARIES 3  
 NUMBER OF PORE PRESSURE LINES 1  
 NUMBER OF POINTS DEFINING COHESION PROFILE 0  
 SEISMIC COEFFICIENT S1,S2 = 0.20 0.00 0.2g SEISMIC FORCE APPLIED @ BASE OF SLICE  
 UNIT WEIGHT OF WATER = 62.40

SEARCH IS BASED ON BISHOP MODIFIED METHOD

SEARCH STARTS AT CENTER ( 650.0, 1.0), WITH FINAL GRID OF 20.0

ALL CIRCLES TANGENT TO DEPTH, 110.0, 120.0, 130.0, 140.0, 150.0, 160.0, 170.0, 180.0

GEOMETRY

SECTIONS 300.0 400.0 900.01500.0

T. CRACKS 10.0 10.0 110.0 110.0  
 W IN CRACK 10.0 10.0 110.0 110.0  
 BOUNDARY 1 10.0 10.0 110.0 110.0  
 BOUNDARY 2 110.0 110.0 110.0 110.0  
 BOUNDARY 3 280.0 280.0 280.0 280.0

SOIL PROPERTIES

LAYER	COHESION	FRICTION ANGLE	DENSITY	PORE
1	0.0	25.0	37.0	0.0
2	50.0	30.0	110.0	0.0

PORE PRESSURE DATA

COORDINATES OF EQUI-PRESSURE LINES

SECTIONS 300.0 400.0 900.01500.0  
 LINE 1 95.0 96.0 110.0 110.0

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	110.0	109.0	650.0	1.0	1.414	1.172
2	110.0	109.0	610.0	1.0	1.490	1.192
3	110.0	149.0	650.0	-39.0	1.297	1.142

4	110.0	109.0	690.0	1.0	1.343	1.154
5	110.0	69.0	650.0	41.0	1.718	1.255
6	110.0	149.0	610.0	-39.0	1.346	1.155
7	110.0	189.0	650.0	-79.0	1.235	1.127
8	110.0	149.0	690.0	-39.0	1.250	1.130
9	110.0	189.0	610.0	-79.0	1.271	1.136
10	110.0	229.0	650.0	-119.0	1.198	1.118
11	110.0	189.0	690.0	-79.0	1.201	1.119
12	110.0	229.0	630.0	-119.0	1.212	1.121
13	110.0	249.0	650.0	-139.0	1.185	1.115
14	110.0	229.0	670.0	-119.0	1.185	1.115
15	110.0	209.0	650.0	-99.0	1.214	1.122
16	110.0	249.0	630.0	-139.0	1.197	1.118
17	110.0	269.0	650.0	-159.0	1.173	1.113
18	110.0	249.0	670.0	-139.0	1.172	1.113
19	110.0	269.0	670.0	-159.0	1.162	1.111
20	110.0	249.0	690.0	-139.0	1.160	1.110
21	110.0	229.0	670.0	-119.0	1.185	1.115
22	110.0	269.0	690.0	-159.0	1.151	1.109
23	110.0	249.0	710.0	-139.0	1.149	1.108
24	110.0	229.0	690.0	-119.0	1.171	1.113
25	110.0	269.0	710.0	-159.0	1.141	1.107
26	110.0	249.0	730.0	-139.0	1.138	1.107
27	110.0	229.0	710.0	-119.0	1.158	1.110
28	110.0	269.0	730.0	-159.0	1.132	1.106
29	110.0	249.0	750.0	-139.0	1.128	1.106
30	110.0	229.0	730.0	-119.0	1.146	1.108
31	110.0	269.0	750.0	-159.0	1.122	1.105
32	110.0	249.0	770.0	-139.0	1.118	1.104
33	110.0	229.0	750.0	-119.0	1.135	1.106
34	110.0	269.0	770.0	-159.0	1.113	1.104
35	110.0	249.0	790.0	-139.0	1.109	1.104
36	110.0	229.0	770.0	-119.0	1.123	1.105
37	110.0	269.0	790.0	-159.0	1.106	1.104
38	110.0	249.0	810.0	-139.0	1.101	1.104
39	110.0	229.0	790.0	-119.0	1.113	1.104
40	110.0	269.0	810.0	-159.0	1.098	1.105
41	110.0	249.0	830.0	-139.0	1.095	1.107
42	110.0	229.0	810.0	-119.0	1.104	1.104
43	110.0	269.0	830.0	-159.0	1.094	1.108
44	110.0	249.0	850.0	-139.0	1.093	1.113
45	110.0	229.0	830.0	-119.0	1.097	1.106
46	110.0	269.0	850.0	-159.0	1.093	1.114
47	110.0	249.0	870.0	-139.0	1.095	1.123
48	110.0	229.0	850.0	-119.0	1.093	1.111
49	110.0	269.0	830.0	-159.0	1.094	1.108
50	110.0	289.0	850.0	-179.0	1.093	1.115
51	110.0	269.0	870.0	-159.0	1.097	1.125

SEARCH IS ABANDONED AFTER 51 CIRCLES

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	120.0	279.0	850.0	-159.0	1.177	1.164
2	120.0	279.0	830.0	-159.0	1.170	1.154
3	120.0	319.0	870.0	-199.0	1.197	1.189

4	120.0	279.0	910.0	-159.0	1.326	1.301
5	120.0	239.0	870.0	-119.0	1.208	1.187
6	120.0	279.0	810.0	-159.0	1.174	1.152
7	120.0	299.0	830.0	-179.0	1.166	1.153
8	120.0	279.0	850.0	-159.0	1.177	1.164
9	120.0	259.0	830.0	-139.0	1.175	1.154
10	120.0	299.0	810.0	-179.0	1.170	1.151
11	120.0	319.0	830.0	-199.0	1.164	1.153
12	120.0	299.0	850.0	-179.0	1.175	1.165
13	120.0	319.0	810.0	-199.0	1.166	1.151
14	120.0	339.0	830.0	-219.0	1.161	1.154
15	120.0	319.0	850.0	-199.0	1.172	1.165
16	120.0	339.0	810.0	-219.0	1.163	1.151
17	120.0	359.0	830.0	-239.0	1.159	1.154
18	120.0	339.0	850.0	-219.0	1.170	1.165
19	120.0	359.0	810.0	-239.0	1.160	1.151
20	120.0	379.0	830.0	-259.0	1.157	1.154
21	120.0	359.0	850.0	-239.0	1.169	1.165
22	120.0	379.0	810.0	-259.0	1.157	1.150
23	120.0	399.0	830.0	-279.0	1.155	1.154
24	120.0	379.0	850.0	-259.0	1.167	1.166
25	120.0	399.0	810.0	-279.0	1.154	1.150
26	120.0	419.0	830.0	-299.0	1.154	1.154
27	120.0	399.0	850.0	-279.0	1.166	1.166
28	120.0	419.0	810.0	-299.0	1.152	1.150
29	120.0	439.0	830.0	-319.0	1.153	1.154
30	120.0	419.0	850.0	-299.0	1.166	1.167
31	120.0	419.0	790.0	-299.0	1.156	1.149
32	120.0	439.0	810.0	-319.0	1.150	1.150
33	120.0	399.0	810.0	-279.0	1.154	1.150
34	120.0	439.0	790.0	-319.0	1.153	1.149
35	120.0	459.0	810.0	-339.0	1.149	1.150
36	120.0	439.0	830.0	-319.0	1.153	1.154
37	120.0	459.0	790.0	-339.0	1.149	1.146
38	120.0	479.0	810.0	-359.0	1.148	1.150
39	120.0	459.0	830.0	-339.0	1.151	1.155
40	120.0	479.0	790.0	-359.0	1.147	1.146
41	120.0	499.0	810.0	-379.0	1.146	1.149
42	120.0	479.0	830.0	-359.0	1.150	1.155
43	120.0	499.0	790.0	-379.0	1.145	1.146
44	120.0	519.0	810.0	-399.0	1.144	1.149
45	120.0	499.0	830.0	-379.0	1.150	1.155
46	120.0	519.0	790.0	-399.0	1.147	1.148
47	120.0	539.0	810.0	-419.0	1.143	1.149
48	120.0	519.0	830.0	-399.0	1.149	1.156
49	120.0	539.0	790.0	-419.0	1.145	1.148
50	120.0	559.0	810.0	-439.0	1.142	1.149
51	120.0	539.0	830.0	-419.0	1.148	1.156

SEARCH IS ABANDONED AFTER 51 CIRCLES

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	130.0	549.0	810.0	-419.0	1.121	1.110
2	130.0	549.0	790.0	-419.0	1.119	1.108
3	130.0	589.0	830.0	-459.0	1.127	1.119

4	130.0	549.0	870.0	-419.0	1.156	1.142
5	130.0	509.0	830.0	-379.0	1.129	1.115
6	130.0	549.0	770.0	-419.0	1.120	1.107
7	130.0	569.0	790.0	-439.0	1.118	1.109
8	130.0	549.0	810.0	-419.0	1.121	1.110
9	130.0	529.0	790.0	-399.0	1.120	1.107
10	130.0	569.0	770.0	-439.0	1.119	1.107
11	130.0	589.0	790.0	-459.0	1.117	1.109
12	130.0	569.0	810.0	-439.0	1.120	1.112
13	130.0	589.0	770.0	-459.0	1.118	1.108
14	130.0	609.0	790.0	-479.0	1.117	1.110
15	130.0	589.0	810.0	-459.0	1.120	1.113
16	130.0	609.0	770.0	-479.0	1.117	1.108
17	130.0	629.0	790.0	-499.0	1.116	1.110
18	130.0	609.0	810.0	-479.0	1.120	1.114
19	130.0	629.0	770.0	-499.0	1.116	1.109
20	130.0	649.0	790.0	-519.0	1.115	1.111
21	130.0	629.0	810.0	-499.0	1.120	1.115
22	130.0	649.0	770.0	-519.0	1.116	1.110
23	130.0	669.0	790.0	-539.0	1.115	1.112
24	130.0	649.0	810.0	-519.0	1.119	1.115
25	130.0	669.0	770.0	-539.0	1.115	1.111
26	130.0	689.0	790.0	-559.0	1.114	1.112
27	130.0	669.0	810.0	-539.0	1.119	1.116
28	130.0	689.0	770.0	-559.0	1.116	1.113
29	130.0	709.0	790.0	-579.0	1.114	1.113
30	130.0	689.0	810.0	-559.0	1.118	1.117
31	130.0	709.0	770.0	-579.0	1.117	1.115
32	130.0	709.0	810.0	-579.0	1.118	1.117
33	130.0	669.0	810.0	-539.0	1.119	1.116
34	130.0	669.0	770.0	-539.0	1.115	1.111

F.S. MINIMUM= 1.114 FOR THE CIRCLE OF CENTER ( 790.0,-559.0)  
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS (BISHOP)	FS (OMS)
1	140.0	699.0	790.0	-559.0	1.107	1.091
2	140.0	679.0	730.0	-539.0	1.123	1.103
3	140.0	719.0	770.0	-579.0	1.110	1.095
4	140.0	679.0	810.0	-539.0	1.111	1.093
5	140.0	639.0	770.0	-499.0	1.106	1.085
6	140.0	639.0	750.0	-499.0	1.110	1.088
7	140.0	659.0	770.0	-519.0	1.106	1.087
8	140.0	639.0	790.0	-499.0	1.107	1.086
9	140.0	619.0	770.0	-479.0	1.106	1.083
10	140.0	659.0	750.0	-519.0	1.112	1.092
11	140.0	659.0	790.0	-519.0	1.107	1.087
12	140.0	619.0	790.0	-479.0	1.108	1.085
13	140.0	619.0	750.0	-479.0	1.110	1.086

F.S. MINIMUM= 1.106 FOR THE CIRCLE OF CENTER ( 770.0,-499.0)  
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	150.0	649.0	770.0	-499.0	1.106	1.069
2	150.0	629.0	710.0	-479.0	1.127	1.086
3	150.0	669.0	750.0	-519.0	1.111	1.076
4	150.0	629.0	790.0	-479.0	1.107	1.067
5	150.0	589.0	750.0	-439.0	1.108	1.063
6	150.0	629.0	730.0	-479.0	1.116	1.076
7	150.0	609.0	750.0	-459.0	1.108	1.067
8	150.0	649.0	730.0	-499.0	1.117	1.080
9	150.0	649.0	770.0	-499.0	1.106	1.069
10	150.0	609.0	770.0	-459.0	1.105	1.063
11	150.0	609.0	730.0	-459.0	1.116	1.074
12	150.0	609.0	790.0	-459.0	1.108	1.065
13	150.0	589.0	770.0	-439.0	1.106	1.062
14	150.0	629.0	750.0	-479.0	1.109	1.070
15	150.0	629.0	790.0	-479.0	1.107	1.067
16	150.0	589.0	790.0	-439.0	1.109	1.063
17	150.0	589.0	750.0	-439.0	1.108	1.063

F.S. MINIMUM= 1.105 FOR THE CIRCLE OF CENTER ( 770.0,-459.0)  
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	160.0	619.0	770.0	-459.0	1.110	1.051
2	160.0	599.0	710.0	-439.0	1.126	1.064
3	160.0	639.0	750.0	-479.0	1.113	1.058
4	160.0	599.0	790.0	-439.0	1.113	1.049
5	160.0	559.0	750.0	-399.0	1.112	1.043
6	160.0	599.0	730.0	-439.0	1.117	1.056
7	160.0	579.0	750.0	-419.0	1.112	1.047
8	160.0	619.0	730.0	-459.0	1.118	1.059
9	160.0	619.0	770.0	-459.0	1.110	1.051
10	160.0	579.0	770.0	-419.0	1.111	1.045
11	160.0	579.0	730.0	-419.0	1.117	1.052
12	160.0	639.0	770.0	-479.0	1.111	1.054
13	160.0	619.0	790.0	-459.0	1.113	1.052
14	160.0	639.0	750.0	-479.0	1.113	1.058
15	160.0	639.0	790.0	-479.0	1.112	1.054
16	160.0	599.0	790.0	-439.0	1.113	1.049
17	160.0	599.0	750.0	-439.0	1.112	1.051

F.S. MINIMUM= 1.110 FOR THE CIRCLE OF CENTER ( 770.0,-459.0)  
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
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1	170.0	629.0	770.0	-459.0	1.118	1.042
2	170.0	609.0	710.0	-439.0	1.131	1.052
3	170.0	649.0	750.0	-479.0	1.121	1.049
4	170.0	609.0	790.0	-439.0	1.120	1.038
5	170.0	569.0	750.0	-399.0	1.119	1.032
6	170.0	609.0	730.0	-439.0	1.123	1.045
7	170.0	589.0	750.0	-419.0	1.120	1.037
8	170.0	629.0	730.0	-459.0	1.124	1.050
9	170.0	629.0	770.0	-459.0	1.118	1.042
10	170.0	589.0	770.0	-419.0	1.119	1.035
11	170.0	589.0	730.0	-419.0	1.123	1.041
12	170.0	649.0	770.0	-479.0	1.119	1.046
13	170.0	629.0	790.0	-459.0	1.120	1.041
14	170.0	649.0	750.0	-479.0	1.121	1.049
15	170.0	649.0	790.0	-479.0	1.120	1.045
16	170.0	609.0	790.0	-439.0	1.120	1.038
17	170.0	609.0	750.0	-439.0	1.119	1.040

F.S. MINIMUM= 1.118 FOR THE CIRCLE OF CENTER ( 770.0,-459.0)  
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	180.0	639.0	770.0	-459.0	1.128	1.034
2	180.0	619.0	710.0	-439.0	1.138	1.043
3	180.0	659.0	750.0	-479.0	1.129	1.041
4	180.0	619.0	790.0	-439.0	1.130	1.030
5	180.0	579.0	750.0	-399.0	1.130	1.024
6	180.0	619.0	730.0	-439.0	1.132	1.036
7	180.0	599.0	750.0	-419.0	1.129	1.028
8	180.0	639.0	730.0	-459.0	1.133	1.041
9	180.0	639.0	770.0	-459.0	1.128	1.034
10	180.0	599.0	770.0	-419.0	1.128	1.026
11	180.0	599.0	730.0	-419.0	1.132	1.032
12	180.0	599.0	790.0	-419.0	1.131	1.026
13	180.0	579.0	770.0	-399.0	1.129	1.022
14	180.0	619.0	750.0	-439.0	1.129	1.032
15	180.0	619.0	790.0	-439.0	1.130	1.030
16	180.0	579.0	790.0	-399.0	1.132	1.023
17	180.0	579.0	750.0	-399.0	1.130	1.024

F.S. MINIMUM= 1.128 FOR THE CIRCLE OF CENTER ( 770.0,-419.0)

1 SLOPE STABILITY ANALYSIS  
BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

CONTROL DATA

NUMBER OF SPECIFIED CENTERS 0  
NUMBER OF DEPTH LIMITING TANGENTS 8  
NUMBER OF VERTICAL SECTIONS 4  
NUMBER OF SOIL LAYER BOUNDARIES 3  
NUMBER OF PORE PRESSURE LINES 1  
NUMBER OF POINTS DEFINING COHESION PROFILE 0

SEISMIC COEFFICIENT S1,S2 = 0.20 0.20 0.2g SEISMIC FORCE APPLIED @ CENTER OF SLICE

UNIT WEIGHT OF WATER = 62.40

SEARCH IS BASED ON BISHOP MODIFIED METHOD

SEARCH STARTS AT CENTER ( 650.0, 1.0), WITH FINAL GRID OF 20.0

ALL CIRCLES TANGENT TO DEPTH, 110.0, 120.0, 130.0, 140.0, 150.0, 160.0, 170.0, 180.0

GEOMETRY

SECTIONS 300.0 400.0 900.01500.0

T. CRACKS 10.0 10.0 110.0 110.0  
W IN CRACK 10.0 10.0 110.0 110.0  
BOUNDARY 1 10.0 10.0 110.0 110.0  
BOUNDARY 2 110.0 110.0 110.0 110.0  
BOUNDARY 3 280.0 280.0 280.0 280.0

SOIL PROPERTIES

LAYER	COHESION	FRICTION ANGLE	DENSITY	PORE
PRESSURE FACTOR 1	0.0	25.0	37.0	0.0
2	50.0	30.0	110.0	0.0

PORE PRESSURE DATA

COORDINATES OF EQUI-PRESSURE LINES

SECTIONS 300.0 400.0 900.01500.0  
LINE 1 95.0 96.0 110.0 110.0

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	110.0	109.0	650.0	1.0	1.615	1.334
2	110.0	109.0	610.0	1.0	1.749	1.395
3	110.0	149.0	650.0	-39.0	1.423	1.248

4	110.0	109.0	690.0	1.0	1.496	1.281
5	110.0	69.0	650.0	41.0	2.192	1.600
6	110.0	149.0	610.0	-39.0	1.502	1.283
7	110.0	189.0	650.0	-79.0	1.327	1.206
8	110.0	149.0	690.0	-39.0	1.349	1.216
9	110.0	189.0	610.0	-79.0	1.382	1.230
10	110.0	229.0	650.0	-119.0	1.270	1.182
11	110.0	189.0	690.0	-79.0	1.275	1.184
12	110.0	229.0	630.0	-119.0	1.291	1.191
13	110.0	249.0	650.0	-139.0	1.250	1.174
14	110.0	229.0	670.0	-119.0	1.250	1.174
15	110.0	209.0	650.0	-99.0	1.295	1.192
16	110.0	249.0	630.0	-139.0	1.268	1.181
17	110.0	269.0	650.0	-159.0	1.233	1.167
18	110.0	249.0	670.0	-139.0	1.232	1.166
19	110.0	269.0	670.0	-159.0	1.217	1.160
20	110.0	249.0	690.0	-139.0	1.214	1.159
21	110.0	229.0	670.0	-119.0	1.250	1.174
22	110.0	269.0	690.0	-159.0	1.201	1.153
23	110.0	249.0	710.0	-139.0	1.197	1.152
24	110.0	229.0	690.0	-119.0	1.230	1.165
25	110.0	269.0	710.0	-159.0	1.186	1.147
26	110.0	249.0	730.0	-139.0	1.181	1.146
27	110.0	229.0	710.0	-119.0	1.211	1.157
28	110.0	269.0	730.0	-159.0	1.172	1.142
29	110.0	249.0	750.0	-139.0	1.166	1.140
30	110.0	229.0	730.0	-119.0	1.193	1.150
31	110.0	269.0	750.0	-159.0	1.157	1.137
32	110.0	249.0	770.0	-139.0	1.151	1.134
33	110.0	229.0	750.0	-119.0	1.176	1.144
34	110.0	269.0	770.0	-159.0	1.144	1.132
35	110.0	249.0	790.0	-139.0	1.137	1.130
36	110.0	229.0	770.0	-119.0	1.159	1.138
37	110.0	269.0	790.0	-159.0	1.132	1.129
38	110.0	249.0	810.0	-139.0	1.124	1.126
39	110.0	229.0	790.0	-119.0	1.143	1.132
40	110.0	269.0	810.0	-159.0	1.121	1.126
41	110.0	249.0	830.0	-139.0	1.114	1.125
42	110.0	229.0	810.0	-119.0	1.129	1.128
43	110.0	269.0	830.0	-159.0	1.112	1.125
44	110.0	249.0	850.0	-139.0	1.108	1.127
45	110.0	229.0	830.0	-119.0	1.117	1.125
46	110.0	269.0	850.0	-159.0	1.107	1.128
47	110.0	249.0	870.0	-139.0	1.106	1.133
48	110.0	229.0	850.0	-119.0	1.109	1.126
49	110.0	269.0	870.0	-159.0	1.107	1.135
50	110.0	249.0	890.0	-139.0	1.118	1.152
51	110.0	229.0	870.0	-119.0	1.106	1.132

SEARCH IS ABANDONED AFTER 51 CIRCLES

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	120.0	259.0	870.0	-139.0	1.231	1.213
2	120.0	239.0	830.0	-119.0	1.219	1.191
3	120.0	279.0	870.0	-159.0	1.226	1.211

4	120.0	239.0	910.0	-119.0	1.367	1.332
5	120.0	199.0	870.0	-79.0	1.249	1.216
6	120.0	239.0	810.0	-119.0	1.232	1.196
7	120.0	259.0	830.0	-139.0	1.210	1.187
8	120.0	239.0	850.0	-119.0	1.215	1.192
9	120.0	219.0	830.0	-99.0	1.228	1.194
10	120.0	259.0	810.0	-139.0	1.221	1.191
11	120.0	279.0	830.0	-159.0	1.203	1.184
12	120.0	259.0	850.0	-139.0	1.210	1.191
13	120.0	279.0	810.0	-159.0	1.211	1.186
14	120.0	299.0	830.0	-179.0	1.197	1.182
15	120.0	279.0	850.0	-159.0	1.205	1.190
16	120.0	299.0	810.0	-179.0	1.204	1.183
17	120.0	319.0	830.0	-199.0	1.192	1.180
18	120.0	299.0	850.0	-179.0	1.201	1.189
19	120.0	319.0	810.0	-199.0	1.199	1.182
20	120.0	339.0	830.0	-219.0	1.188	1.179
21	120.0	319.0	850.0	-199.0	1.197	1.188
22	120.0	339.0	810.0	-219.0	1.194	1.180
23	120.0	359.0	830.0	-239.0	1.185	1.178
24	120.0	339.0	850.0	-219.0	1.194	1.187
25	120.0	359.0	810.0	-239.0	1.189	1.178
26	120.0	379.0	830.0	-259.0	1.182	1.177
27	120.0	359.0	850.0	-239.0	1.191	1.186
28	120.0	379.0	810.0	-259.0	1.184	1.176
29	120.0	399.0	830.0	-279.0	1.179	1.176
30	120.0	379.0	850.0	-259.0	1.189	1.186
31	120.0	399.0	810.0	-279.0	1.181	1.174
32	120.0	419.0	830.0	-299.0	1.176	1.175
33	120.0	399.0	850.0	-279.0	1.187	1.186
34	120.0	419.0	810.0	-299.0	1.177	1.173
35	120.0	439.0	830.0	-319.0	1.174	1.174
36	120.0	419.0	850.0	-299.0	1.185	1.186
37	120.0	439.0	810.0	-319.0	1.174	1.172
38	120.0	459.0	830.0	-339.0	1.172	1.174
39	120.0	439.0	850.0	-319.0	1.183	1.185
40	120.0	459.0	810.0	-339.0	1.172	1.171
41	120.0	479.0	830.0	-359.0	1.170	1.174
42	120.0	459.0	850.0	-339.0	1.181	1.184
43	120.0	479.0	810.0	-359.0	1.170	1.171
44	120.0	499.0	830.0	-379.0	1.169	1.174
45	120.0	479.0	850.0	-359.0	1.179	1.184
46	120.0	499.0	810.0	-379.0	1.167	1.170
47	120.0	519.0	830.0	-399.0	1.168	1.174
48	120.0	499.0	850.0	-379.0	1.178	1.183
49	120.0	499.0	790.0	-379.0	1.169	1.168
50	120.0	519.0	810.0	-399.0	1.165	1.169
51	120.0	479.0	810.0	-359.0	1.170	1.171

SEARCH IS ABANDONED AFTER 51 CIRCLES

1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	130.0	509.0	810.0	-379.0	1.150	1.135
2	130.0	489.0	770.0	-359.0	1.159	1.138
3	130.0	529.0	810.0	-399.0	1.149	1.135

4	130.0	489.0	850.0	-359.0	1.166	1.148
5	130.0	449.0	810.0	-319.0	1.157	1.135
6	130.0	529.0	790.0	-399.0	1.149	1.134
7	130.0	549.0	810.0	-419.0	1.147	1.135
8	130.0	529.0	830.0	-399.0	1.153	1.140
9	130.0	509.0	810.0	-379.0	1.150	1.135
10	130.0	549.0	790.0	-419.0	1.147	1.134
11	130.0	569.0	810.0	-439.0	1.146	1.135
12	130.0	549.0	830.0	-419.0	1.152	1.140
13	130.0	569.0	790.0	-439.0	1.146	1.134
14	130.0	589.0	810.0	-459.0	1.145	1.136
15	130.0	569.0	830.0	-439.0	1.151	1.140
16	130.0	589.0	790.0	-459.0	1.144	1.134
17	130.0	609.0	810.0	-479.0	1.144	1.137
18	130.0	589.0	830.0	-459.0	1.150	1.140
19	130.0	589.0	770.0	-459.0	1.146	1.135
20	130.0	609.0	790.0	-479.0	1.142	1.134
21	130.0	569.0	790.0	-439.0	1.146	1.134
22	130.0	609.0	770.0	-479.0	1.144	1.134
23	130.0	629.0	790.0	-499.0	1.141	1.134
24	130.0	609.0	810.0	-479.0	1.144	1.137
25	130.0	629.0	770.0	-499.0	1.143	1.134
26	130.0	649.0	790.0	-519.0	1.140	1.134
27	130.0	629.0	810.0	-499.0	1.143	1.137
28	130.0	649.0	770.0	-519.0	1.142	1.135
29	130.0	669.0	790.0	-539.0	1.138	1.134
30	130.0	649.0	810.0	-519.0	1.142	1.137
31	130.0	669.0	770.0	-539.0	1.141	1.135
32	130.0	689.0	790.0	-559.0	1.137	1.134
33	130.0	669.0	810.0	-539.0	1.141	1.137
34	130.0	689.0	770.0	-559.0	1.141	1.136
35	130.0	709.0	790.0	-579.0	1.137	1.135
36	130.0	689.0	810.0	-559.0	1.140	1.137
37	130.0	709.0	770.0	-579.0	1.141	1.138
38	130.0	729.0	790.0	-599.0	1.137	1.136
39	130.0	709.0	810.0	-579.0	1.139	1.137
40	130.0	729.0	770.0	-599.0	1.141	1.139
41	130.0	729.0	810.0	-599.0	1.138	1.137
42	130.0	689.0	810.0	-559.0	1.140	1.137
43	130.0	689.0	770.0	-559.0	1.141	1.136

F.S. MINIMUM= 1.137 FOR THE CIRCLE OF CENTER ( 790.0,-579.0)  
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	140.0	719.0	790.0	-579.0	1.135	1.118
2	140.0	699.0	730.0	-559.0	1.159	1.139
3	140.0	739.0	770.0	-599.0	1.141	1.125
4	140.0	699.0	810.0	-559.0	1.138	1.119
5	140.0	659.0	770.0	-519.0	1.138	1.116
6	140.0	699.0	750.0	-559.0	1.147	1.128
7	140.0	679.0	770.0	-539.0	1.139	1.119
8	140.0	719.0	750.0	-579.0	1.148	1.131
9	140.0	719.0	790.0	-579.0	1.135	1.118
10	140.0	679.0	790.0	-539.0	1.136	1.116

11	140.0	679.0	750.0	-539.0	1.146	1.125
12	140.0	739.0	790.0	-599.0	1.136	1.120
13	140.0	719.0	810.0	-579.0	1.137	1.119
14	140.0	739.0	770.0	-599.0	1.141	1.125
15	140.0	739.0	810.0	-599.0	1.136	1.120
16	140.0	699.0	810.0	-559.0	1.138	1.119
17	140.0	699.0	770.0	-559.0	1.138	1.120

F.S. MINIMUM= 1.135 FOR THE CIRCLE OF CENTER ( 790.0,-579.0)  
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	150.0	729.0	790.0	-579.0	1.142	1.109
2	150.0	709.0	730.0	-559.0	1.162	1.128
3	150.0	749.0	770.0	-599.0	1.147	1.117
4	150.0	709.0	810.0	-559.0	1.144	1.108
5	150.0	669.0	770.0	-519.0	1.144	1.106
6	150.0	709.0	750.0	-559.0	1.152	1.118
7	150.0	689.0	770.0	-539.0	1.145	1.109
8	150.0	729.0	750.0	-579.0	1.153	1.121
9	150.0	729.0	790.0	-579.0	1.142	1.109
10	150.0	689.0	790.0	-539.0	1.143	1.106
11	150.0	689.0	750.0	-539.0	1.151	1.116
12	150.0	749.0	790.0	-599.0	1.143	1.112
13	150.0	729.0	810.0	-579.0	1.142	1.109
14	150.0	749.0	770.0	-599.0	1.147	1.117
15	150.0	749.0	810.0	-599.0	1.143	1.111
16	150.0	709.0	810.0	-559.0	1.144	1.108
17	150.0	709.0	770.0	-559.0	1.145	1.111

F.S. MINIMUM= 1.142 FOR THE CIRCLE OF CENTER ( 790.0,-579.0)  
1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	160.0	739.0	790.0	-579.0	1.153	1.105
2	160.0	719.0	730.0	-559.0	1.171	1.122
3	160.0	759.0	770.0	-599.0	1.156	1.111
4	160.0	719.0	810.0	-559.0	1.154	1.102
5	160.0	679.0	770.0	-519.0	1.155	1.101
6	160.0	719.0	750.0	-559.0	1.162	1.113
7	160.0	699.0	770.0	-539.0	1.155	1.103
8	160.0	739.0	750.0	-579.0	1.162	1.116
9	160.0	739.0	790.0	-579.0	1.153	1.105
10	160.0	699.0	790.0	-539.0	1.153	1.100
11	160.0	699.0	750.0	-539.0	1.161	1.109
12	160.0	699.0	810.0	-539.0	1.154	1.100
13	160.0	679.0	790.0	-519.0	1.154	1.098
14	160.0	719.0	770.0	-559.0	1.156	1.107
15	160.0	719.0	810.0	-559.0	1.154	1.102

16	160.0	679.0	810.0	-519.0	1.156	1.099
17	160.0	679.0	770.0	-519.0	1.155	1.101

F.S. MINIMUM= 1.153 FOR THE CIRCLE OF CENTER ( 790.0,-539.0)  
 1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	170.0	709.0	790.0	-539.0	1.168	1.098
2	170.0	689.0	730.0	-519.0	1.181	1.111
3	170.0	729.0	770.0	-559.0	1.169	1.103
4	170.0	689.0	810.0	-519.0	1.169	1.094
5	170.0	649.0	770.0	-479.0	1.171	1.093
6	170.0	689.0	750.0	-519.0	1.174	1.103
7	170.0	669.0	770.0	-499.0	1.170	1.095
8	170.0	709.0	750.0	-539.0	1.174	1.106
9	170.0	709.0	790.0	-539.0	1.168	1.098
10	170.0	669.0	790.0	-499.0	1.169	1.092
11	170.0	669.0	750.0	-499.0	1.174	1.100
12	170.0	729.0	790.0	-559.0	1.167	1.099
13	170.0	709.0	810.0	-539.0	1.169	1.097
14	170.0	729.0	770.0	-559.0	1.169	1.103
15	170.0	749.0	790.0	-579.0	1.166	1.102
16	170.0	729.0	810.0	-559.0	1.167	1.098
17	170.0	749.0	770.0	-579.0	1.169	1.105
18	170.0	769.0	790.0	-599.0	1.166	1.104
19	170.0	749.0	810.0	-579.0	1.166	1.100
20	170.0	769.0	770.0	-599.0	1.169	1.108
21	170.0	769.0	810.0	-599.0	1.166	1.103
22	170.0	729.0	810.0	-559.0	1.167	1.098
23	170.0	729.0	770.0	-559.0	1.169	1.103

F.S. MINIMUM= 1.166 FOR THE CIRCLE OF CENTER ( 790.0,-579.0)  
 1 BISHOP MODIFIED AND/OR ORDINARY METHOD OF SLICES.

NUMBER	TANGENT	RADIUS	(X) CENTER	(Y) CENTER	FS(BISHOP)	FS(OMS)
1	180.0	759.0	790.0	-579.0	1.181	1.100
2	180.0	739.0	730.0	-559.0	1.194	1.114
3	180.0	779.0	770.0	-599.0	1.183	1.107
4	180.0	739.0	810.0	-559.0	1.181	1.096
5	180.0	699.0	770.0	-519.0	1.185	1.096
6	180.0	739.0	750.0	-559.0	1.188	1.107
7	180.0	719.0	770.0	-539.0	1.184	1.099
8	180.0	759.0	750.0	-579.0	1.187	1.109
9	180.0	759.0	790.0	-579.0	1.181	1.100
10	180.0	719.0	790.0	-539.0	1.182	1.095
11	180.0	719.0	750.0	-539.0	1.189	1.104
12	180.0	779.0	790.0	-599.0	1.181	1.103
13	180.0	759.0	810.0	-579.0	1.181	1.099
14	180.0	779.0	770.0	-599.0	1.183	1.107

15	180.0	779.0	810.0	-599.0	1.181	1.101
16	180.0	739.0	810.0	-559.0	1.181	1.096
17	180.0	739.0	770.0	-559.0	1.183	1.101
18	180.0	799.0	810.0	-619.0	1.179	1.103
19	180.0	779.0	830.0	-599.0	1.182	1.101
20	180.0	799.0	790.0	-619.0	1.181	1.106
21	180.0	819.0	810.0	-639.0	1.179	1.105
22	180.0	799.0	830.0	-619.0	1.181	1.102
23	180.0	819.0	790.0	-639.0	1.180	1.108
24	180.0	839.0	810.0	-659.0	1.179	1.108
25	180.0	819.0	830.0	-639.0	1.180	1.105
26	180.0	839.0	790.0	-659.0	1.180	1.110
27	180.0	839.0	830.0	-659.0	1.180	1.107
28	180.0	799.0	830.0	-619.0	1.181	1.102
29	180.0	799.0	790.0	-619.0	1.181	1.106

F.S. MINIMUM= 1.179 FOR THE CIRCLE OF CENTER ( 810.0,-639.0)



**APPENDIX H**  
**CLOSURE FUND DOCUMENTS**

## STATEMENT OF ACCOUNT

**P T I F****UTAH PUBLIC TREASURERS' INVESTMENT FUND**

Edward T. Alter, Utah State Treasurer, Fund Manager

E315 State Capitol Complex

Salt Lake City, Utah 84114-2315

Local Call (801) 538-1042 Toll Free (800) 395-7665

www.treasurer.state.ut.us

PAGE: 1

ATTN: MARK MCRAE  
BOUNTIFUL CITY - LANDFILL ESCROW  
PO BOX 369  
BOUNTIFUL, UT 84011-0369

01/31/05

STATEMENT OF ACCOUNT NO: 0973

REPORT PERIOD: 01/01/05 TO 01/31/05

DATE	REFERENCE	DEPOSITS	WITHDRAWALS	BALANCE
01/01/05	BEGBAL	0.00	0.00	1,688,974.55
01/31/05	NETEARN	3,511.88	0.00	1,692,486.43
01/31/05	ENDBAL	0.00	0.00	1,692,486.43

## ACCOUNT SUMMARY

BEGINNING BALANCE:	1,688,974.55
DEPOSITS IN THE PERIOD:	3,511.88
WITHDRAWALS IN THE PERIOD:	0.00
ENDING BALANCE:	1,692,486.43
GROSS EARNINGS:	3,511.88
ADMINISTRATIVE FEE (0.0000%)	0.00
NET EARNINGS:	3,511.88
AVERAGE DAILY BALANCE:	1,688,974.55
GROSS EARNINGS RATE:	2.4147%
NET EARNINGS RATE:	2.4147%

12-31-04 GASB 31 FAIR VALUE  
PER SHARE FACTOR IS 1.00025528

PLEASE RETAIN THIS STATEMENT FOR FUTURE REFERENCE

## STATEMENT OF ACCOUNT



PTIF

## PUBLIC TREASURERS' INVESTMENT FUND

Edward T. Alter, Utah State Treasurer, Fund Manager  
 E315 State Capitol Complex  
 Salt Lake City, Utah 84114-2315  
 Local Call (801) 538-1042 Toll Free (800) 395-7665  
[www.treasurer.state.ut.us](http://www.treasurer.state.ut.us)

PAGE: 1

BOUNTIFUL CITY  
 LANDFILL CLOSURE ACCOUNT  
 ATTN: MARK MCRAE  
 PO BOX 369  
 BOUNTIFUL, UT 84011-0369

01/31/05

STATEMENT OF ACCOUNT NO: 1029

REPORT PERIOD: 01/01/05 TO 01/31/05

DATE	REFERENCE	DEPOSITS	WITHDRAWALS	BALANCE
01/01/05	BEGBAL	0.00	0.00	657,388.80
01/31/05	NETEARN	1,366.91	0.00	658,755.71
01/31/05	ENDBAL	0.00	0.00	658,755.71

## ACCOUNT SUMMARY

BEGINNING BALANCE:	657,388.80
DEPOSITS IN THE PERIOD:	1,366.91
WITHDRAWALS IN THE PERIOD:	0.00
ENDING BALANCE:	658,755.71
GROSS EARNINGS:	1,366.91
ADMINISTRATIVE FEE (0.0000%)	0.00
NET EARNINGS:	1,366.91
AVERAGE DAILY BALANCE:	657,388.80
GROSS EARNINGS RATE:	2.4147%
NET EARNINGS RATE:	2.4147%

12-31-04 GASB 31 FAIR VALUE  
 PER SHARE FACTOR IS 1.00025528

PLEASE RETAIN THIS STATEMENT FOR FUTURE REFERENCE

## ESCROW AGREEMENT

I.

### SUMMARY

#### Parties to the Agreement:

1. Depositor: City of Bountiful, Utah (the "Entity")  
Address: 790 South 100 East  
P.O. Box 369  
Bountiful, UT 84011-0369  
  
Contact: Galen D Rasmussen Tel. No. (801) 298-6117  
Mark O. McRae Tel. No. (801) 298-6090
2. State Agency: Utah Division of Solid & Hazardous Waste (the "State")  
Address: P.O. Box 144880  
Salt Lake City, Utah 84114-4880  
  
Contact: Ralph Bohn, Section Mgr. Tel. No. 801-538-6170  
 Tel. No.   
 Tel. No.
3. Escrow Agent: Utah State Treasurer (the "Treasurer")  
215 State Capitol  
Salt Lake City, Utah 84114  
  
Contact: Robert C. Kirk, Financial Manager  
Stephanie Baldes, Accountant  
  
Telephone: (801)538-1042 Telefax: (801)538-1465 Toll free: 800-395-7665

#### B. Deposit Amount(s):

1. Principal amount \$ 1,200,000.00 (the "Proceeds")
2. Additional amount(s), if any:  
  
\$  From:   
\$  From:   
\$  From:

#### C. Authorizing Resolution:

Financial Assurance Plan for closure & post-closure costs  
related to the Bountiful Sanitary Landfill. (the "Instrument")

#### D. Project Description:

Closure & post-closure costs related to the Bountiful Sanitary  
Landfill located at Pages Lane and 1300 West, W. Btfl, (the "Project")  
This Summary is an integral part of the Escrow Agreement Utah.

## II. AGREEMENT

A. The undersigned hereby deliver to the Treasurer, the Proceeds and Additional amount(s) to be held and disposed of by the Treasurer in accordance with the duties, instructions, and upon the terms and conditions hereinafter set forth in this Escrow Agreement to which the undersigned hereby agree:

1. For purposes of this Escrow Agreement and this Escrow Agreement only:
  - (a) The Treasurer shall not incur any liability in acting upon any written authorization and request delivered hereunder and believed by the Treasurer to be genuine and to be signed by the proper parties.
  - (b) The Treasurer may consult with legal counsel in the event of any dispute or question as to the construction of the Treasurer's duties hereunder and shall not be held to any liability for acting in accordance with advice so received.
  - (c) The Treasurer shall have a first lien on the moneys held by it hereunder for its compensation and for any costs, liability or expense or counsel fees it may incur.
2. In the event of any disagreement between the undersigned or any of them, and/or any other person, resulting in adverse claims and demands being made in connection with or for any moneys involved herein or affected hereby, the Treasurer shall be entitled at its option to refuse to comply with any such claim or demand, so long as such disagreement shall continue, and in so refusing the Treasurer may refrain from making any delivery or other disposition of any moneys involved herein or affected hereby and in so doing the Treasurer shall not be or become liable to the undersigned or any of them or to any person or party for its failure or refusal to comply with such conflicting or adverse demands, and the Treasurer shall be entitled to continue so to refrain and refuse so to act until:
  - (a) The rights of the adverse claimants have been finally adjudicated in a court assuming and having jurisdiction of the parties and the moneys involved herein or affected hereby; and/or
  - (b) All differences shall have been adjusted by agreement and the Treasurer shall have been notified thereof in writing signed by all of the persons interested.
3. The fees for the usual services of the Treasurer under the terms of this Escrow agreement are set forth in the schedule attached hereto as **Exhibit A**. It is agreed that additional compensation shall be paid to the Treasurer for any additional or extraordinary service it may be requested to render hereunder, and the Treasurer shall be reimbursed for any out-of-pocket expenses (including, without limitation, fees of counsel) reasonably incurred in connection with additional or extraordinary services.
4. The Entity and the State hereby agree that the deposit of the Proceeds shall constitute compliance with applicable deposit and investment provisions of the Instrument.
5. The duties of the Treasurer under the terms of this Escrow Agreement are as follows:
  - (a) The Treasurer shall receive into a separate fund (the "Escrow Account") Proceeds and any additional amounts to be used in connection with the Project.
  - (b) The Treasurer shall reimburse Entity in amounts authorized in writing by the Entity and the State.
  - (c) Each authorization must be signed by one official from both the Entity and the State, except as provided in (i) of this section, and shall be substantially the same as the form attached as Exhibit B. On behalf of the Entity, the written authorization and request shall be signed by any one of the officials of the Entity identified in Section I.A. 1. above. On behalf of the State, the written authorization and request shall be signed by any one of the officials of the State identified in Section I.A.2. above. The Treasurer assumes no responsibility for expenditure

of moneys paid out of the Escrow Account pursuant to a written authorization and request properly signed and delivered the Treasurer as provided herein.

- (i) If the Entity fails to provide closure, post-closure, or corrective action of the solid waste management facility as required by the *Utah Solid Waste Permitting and Management Rules* and the Entity's solid waste disposal permit, the Executive Secretary will issue an order to close under the authority of Section 19-6-107(7) of the Utah Solid and Hazardous Waste Act. Upon completion of the Administrative process, including the Entity's right to contest and appeal the administrative action, the State may independently request, in writing, reimbursement to a State-approved and authorized third party for the costs related to the third party's activities for closure, post-closure or corrective actions at the facility.
- (d) If a written authorization and request indicates that an amount (the "Retained Amount") payable to a Provider is to be held for retainage pending completion of the Project or the lapse of time, the Treasurer shall segregate such amount and shall invest the Retained Amount in an interest-bearing account (the "Separate Account"), the interest on which shall accrue for the benefit of the Provider. The Retained Amount and all accrued interest thereon shall be disbursed by the Treasurer in the same manner as provided in paragraph 5(b) hereof. All fees charged or incurred by the Treasurer relating to the establishment, investment and disbursement of the Separate Account shall be borne solely by the Provider and may be withheld by the Treasurer from the Separate Account prior to the disbursement thereof; provided, however, that if such fees are borne by the Separate Account, and if the interest earned on the Separate Account is less than the amount of such fees, then the fees withheld from such Separate Account shall not exceed the interest earned and the balance of such fees shall be paid by the Entity.
- (e) The funds deposited by the parties hereto in the Escrow Fund and in any Separate Account shall be invested by the Treasurer in the Utah Public Treasurers' Investment Fund established by Section 51-7-5 of the Utah Code. All interest earned on moneys held in the Escrow Account shall be retained therein and disbursed as provided herein.
- (f) The Treasurer shall report at least monthly concerning the receipts, disbursements and status of the Escrow Account. The reports shall be mailed to the Entity and to the State at their respective addresses as shown in Section I.A. above. Notification of changes of address, if any, shall be in writing and mailed to the parties at their respective addresses as shown in Section I.A. above.
- (g) This Escrow Agreement will be terminated after payment of the fees and out-of-pocket expenses of the Treasurer, and upon liquidation of the Escrow Account as provided herein. This Escrow Account, upon the earlier to occur of:
  - (i) receipt by the Treasurer of a written authorization and request, signed as provided in paragraph 5(c) hereof, stating that the acquisition, construction, improvement and extension of the Project is complete, that all obligations and costs in connection with the Project which are payable out of the Escrow Account have been paid and discharged, and that the Treasurer is authorized and directed to transfer all moneys in the Escrow Fund to the Entity or such other disposition as may be agreed by the State and the Entity; or
  - (ii) receipt by the Treasurer of a written certificate of the State, signed by the appropriate representatives thereof as identified in paragraph 5(c) hereof, stating that at least 3<sup>(three)</sup> months have expired from the date of this Agreement and that all remaining moneys in the Escrow Account are to be transferred to the State as a prepayment on the Bond purchased by the State or such other disposition as may be specified by the State.

This Agreement may be modified or amended only by a written Amendment attached to this Agreement and signed by the parties to this Agreement.



Entity: City of Bountiful, Utah

By: *Dale S. Rasmussen*

Title: Administrative Services Director

Date: December 1, 2005

Attest and Countersign:

By: *Kim F. Colman*

Title: City Recorder

Date: December 1, 2005

STATE: Utah Division of Solid and Hazardous Waste

By: \_\_\_\_\_

Title: Executive Secretary  
Utah Solid & Hazardous Waste Control Board

Date: \_\_\_\_\_

Accepted:

Utah State Treasurer

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## EXHIBIT A

### Fees due to State Treasurer as Escrow Agent

---

Maximum annual fee is 10 basis points (one-tenth of one percent (.001)) applied to the average daily balance in each account. The fee is assessed monthly based on the actual number of days in the month divided by 360 days.

Minimum annual fee is zero.

The Treasurer intends to deduct the administrative fee from gross earnings of each account before crediting earnings to the account(s). The amount of such fees is not reflected on monthly statements to the Entity, and is payable only from gross earnings on the account(s).

Entity shall not be liable to the Treasurer for any other costs or expenses for usual services. Usual services include:

1. Acceptance of funds delivered for deposit.
2. Deposit of funds and issuance of Treasurer's Receipt.
3. Investment of all funds delivered to Treasurer.
4. Credit net interest earnings to designated account(s) on a monthly basis.
5. Reimburse entity for project costs pursuant to receipt of a written authorization and request properly signed and delivered to the Treasurer.
6. Prepare and deliver to Entity and State a monthly accounting showing all deposits, withdrawals, interest credits and rate, ending balance and average balance for each account.

Entity will be liable to the Treasurer for out-of-pocket expenses resulting from any additional or extraordinary service Treasurer is requested to render and reasonably incurs in connection with additional or extraordinary services.



EXHIBIT B -1

WRITTEN AUTHORIZATION AND REQUEST FOR REIMBURSEMENT  
FROM ESCROW FUND

TO: The Utah State Treasurer, as Escrow Agent (the "Treasurer").

DATE: \_\_\_\_\_

WRITTEN REQUEST NO.: \_\_\_\_\_

I, the undersigned authorized officer of \_\_\_\_\_, (the "Entity"),  
do hereby certify and request to the Treasurer as follows:

7. Pursuant to the provisions of the Escrow Agreement by and between the Entity, the State and the Treasurer dated \_\_\_\_\_, (the "Escrow Agreement"), the undersigned hereby authorizes and requests a reimbursement from the Escrow Account to pay the amounts shown on the attached Payment Schedule.
8. Each payment proposed to be made as set forth on the Payment Schedule has been incurred and is a proper charge against the Escrow Account.
9. To the extent that the payment of any item set forth on the Payment Schedule is for other than work, materials, equipment or supplies, in connection with this authorization and request, the undersigned certifies that each payment proposed to be made on the Payment Schedules is a proper charge against the Escrow Account, is a reasonable amount and has not been heretofore included in a prior Written Authorization and Request for Reimbursement for the Escrow Account.
10. This Written Authorization and Request, including the Payment Schedule attached hereto, shall be conclusive evidence of the facts and statements set forth herein.
11. A copy of this Written Authorization and Request is being kept on file in the official records of the Entity.

The terms used herein which are defined in the Escrow Agreement shall have the respective meanings therein assigned to them.

\_\_\_\_\_  
By: \_\_\_\_\_

Title: \_\_\_\_\_

EXHIBIT B-2

I/we, the undersigned authorized officer(s) of the State, do hereby certify and request to the Treasurer follows:

1. I/we have reviewed the foregoing statements of the authorized officer of the Entity attached hereto, and on behalf of the State approve the request for payment from the Escrow Fund made therein; provided that the State has not independently verified the statements of such authorized officer of the Entity attached hereto and makes no representations or certifications with respect thereto.
2. A copy of this Written Authorization and Request is being kept on file in the official records of the State.

The terms used herein shall have the same meanings assigned to them in the attached statements of the authorized officer of the Entity.

Dated the date appearing at the top of the attached statements of the authorized officer of the Entity.

STATE:

By: \_\_\_\_\_

Title: \_\_\_\_\_

# EXHIBIT B -3

## REIMBURSEMENT SCHEDULE

Check No.	Person or Firm	Amount	Purpose
-----------	----------------	--------	---------

Reimbursement for the above listed payments totaling \$\_\_\_\_\_ is to be made to \_\_\_\_\_  
 \_\_\_\_\_ ("Entity") by transfer of funds from the Escrow Account (PTIF#\_\_\_\_\_) to  
 (CHECK ONE):

\_\_\_\_\_ Entity's general account in the Public Treasurer's Investment Fund  
 (PTIF#); or to

\_\_\_\_\_ Entity's checking account at \_\_\_\_\_ ("Bank").  
 Account number \_\_\_\_\_

## RETAINAGE REQUEST

In addition to the above listed reimbursement, transfer the following retainage amounts:

From Escrow Acct.#	To Retainage Acct.#	For Contractor (name)	#Amount
--------------------	---------------------	-----------------------	---------

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Contact Person at time of Wire Transfer \_\_\_\_\_  
 (name) (phone #)

UTAH STATE TREASURER  
UTAH PUBLIC TREASURERS' INVESTMENT FUND  
New Account Application and Change Form

DATE 12/01/2005

A. Title of Account Landfill Closure and Post-closure Care

B. PTIF Account Number(s) #0973

**ACTION:**

<input checked="" type="checkbox"/> Create New PTIF Account (Sec. A,C,D,E,F)	<input type="checkbox"/> Change Bank/Account (Sec. A,B,E,F).	<input type="checkbox"/> Add Bank/Account (Sec. A,B,E,F)
<input type="checkbox"/> Change Address (Sec. A,B,D,F)	<input type="checkbox"/> Change Authorized Individuals (Sec. A,B, C,F)	<input type="checkbox"/> Change Internet Access (Sec. A,B,C,F)

**C. Individuals Authorized to Make Deposits/Withdrawals:**

NAME	TITLE	PHONE	INTERNET ACCESS (Y/N)
1. <u>Galen D. Rasmussen</u>	<u>Admin Srvcs Dir</u>	<u>(801) 298-6117</u>	<u>Y</u>
2. <u>Mark O. McRae</u>	<u>Treasurer</u>	<u>(801) 298-6090</u>	<u>Y</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____

D. PTIF Statement Mailing Address: City of Bountiful, P.O. Box 369, Bountiful, UT 84011-0369  
Attn: Mark O. McRae

**F. Bank (Depository) Information:**

**New/Additional Bank**

**Delete Bank**

a. Name of Bank _____	Name of Bank _____
b. Account Number _____	Account Number _____
<input type="checkbox"/> Checking <input type="checkbox"/> Savings <input type="checkbox"/> Other _____	

**F. Authorization:** In accordance with applicable statutes and procedures established by the Utah State Treasurer, we the undersigned hereby authorize the Utah State Treasurer to make the above changes and/or initiate wire and/or automated clearing house (ACH) credit entries and/or debit entries to our bank indicated above. The depository named above is authorized to credit and/or debit the same to such account. This authorization is to remain in full force and effect until the Utah State Treasurer has received written notification from us of its termination.

Signed <u>Galen D. Rasmussen</u> <u>12-1-05</u> (Date)	Signed <u>Mark O. McRae</u> <u>12/1/05</u> (Date)
-----------------------------------------------------------	------------------------------------------------------

Name <u>Galen D. Rasmussen</u>	Name <u>Mark O. McRae</u>
Title <u>Administrative Srvcs Director</u>	Title <u>Treasurer</u>

**TWO SIGNATURES REQUIRED**

Please **attach a deposit slip** and return this form to:

Utah State Treasurer's Office  
215 State Capitol  
Salt Lake City, Utah 84114

**APPENDIX I**  
**FROST PENETRATION ANALYSIS**

## INTRODUCTION

This appendix provides a summary of the Frost Penetration Analysis conducted on the final cover for the Bountiful Sanitary Landfill. The frost penetration analysis was conducted at the request of the State of Utah Department of Environmental Quality Division of Solid and Hazardous Waste (DSHW) to satisfy their concerns regarding the proposed standard landfill cover design. Based on the results of the analysis conducted, the final cover design has been modified to include a fifteen inch layer of topsoil that will serve three distinct purposes. These purposes are as follows:

1. Act as topsoil to sustain plant growth.
2. Act as a root zone for vegetation.
3. Act as a frost protection zone for the final landfill cover.

The reason that the decision was made to increase topsoil thickness as opposed to importing another soil type for frost protection was the availability of excess top soil already on site. The topsoil which will be used is manufactured on site by land farming processed organic matter and sludge to produce high quality topsoil. Sufficient topsoil will be available as needed, therefore this design will have very little effect on our financial assurance requirements.

## FROST PENETRATION ANALYSIS

The frost penetration analysis for the final cover design at the Bountiful Sanitary Landfill was conducted using the Modified Breggren Equation. This is the most widely used equation to estimate seasonal freeze and thaw depths. The equation is as follows:

$$z = \sqrt{(((48) * (1.056) * (K) * (F) * (n)) / L)}$$

where,

*z = frost penetration depth*

*K = thermal conductivity of soil (Btu/ft-hr-°F)*

*L = volumetric latent heat of fusion (Btu/ft³)*

*F = air freezing index*

*n = air to surface index conversion factor*

## Thermal Conductivity, K

Thermal conductivity is defined as the quantity of heat flow in a unit time through a unit area of a substance caused by a unit thermal gradient.

The thermal conductivity of the soil was determined using a graph developed by the US Army Corps of Engineers (attached). Values for thermal conductivity are based on variations on dry unit weight and moisture content. We determined the thermal conductivity of the soil over a range of anticipated soil conditions ranging from 75 lb/cu.ft to 95 lb/cu.ft. dry unit weight and from 15% to 40 % moisture content. A copy of the spread sheet showing determined values is attached.

## Volumetric Latent Heat of Fusion, L

The volumetric latent heat of fusion is the quantity of heat required to cause a phase change in soil moisture. This value was estimated using the following equation.

$$L = 144 \gamma_d (w/100)$$

where,

$\gamma_d$  = dry unit weight of the soil (lb/ft<sup>3</sup>)

$w$  = moisture content of the soil (%)

Using the same range of values for dry density and moisture content we calculated the volumetric heat of latent fusion as shown on the attached spread sheet.

## Air Freezing Index

The penetration of freezing or thawing temperatures into soil partly depends on the magnitude and duration of the temperature differential at the air-ground interface. The magnitude of the temperature differential is expressed as the number of degrees that the temperature in the air or at the ground surface is below 32 °F. The duration is expressed in degree days.

The air freezing index (F) may be determined by simply taking the average of the high and low temperatures for the day and subtracting from 32 °F. The number of degree-days is the summation of the differences. A copy of the tabulation calculating this value is attached.

The weather data used to calculate the Air Freezing Index was obtained for Antelope Island, the closest and most appropriate weather station, from the Western Regional Climate Center Web Site. A copy of the data is attached.

The freezing index using the procedures and data described above was calculated to be 134 days.

## Air-to-Surface Index

The Air-to-Surface index provides a correlation between air temperatures and ground surface temperatures. Because site specific Air-to Surface index values are difficult and time consuming to determine a ratio of surface index to air index (n-factor) has been determined and made available by the US Army Corps of Engineers. The following are some typical n-factors:

<u>Type of Surface</u>	<u>n-factor</u>
Portland Cement	0.75
Asphalt Pavement	0.70
Snow	1.0
Bare Soil	0.7
Turf	0.5

Because grasses will be planted as erosion control on all areas of the landfill as it is closed, the n-factor for turf may be the most applicable in some areas. However, the grass to be planted will be more of a wheat grass type and may not act similar to turf in all areas this suggests that a n-factor around 0.6 may be more appropriate. In addition, it is possible that frost may occur before any grass has the opportunity to grow in some areas. In these areas an n-factor of 0.7 will be appropriate. Spread sheets showing the effect of varying the n-factors is attached.

### **Frost Depth**

Using the variables determined as described above, and varying the dry unit weight and moisture content of the soil over the range where it could reasonably be expected to fall produces frost penetration results ranging from 8.1-14.4 inches. The worst case will be when the soil is relatively dry, relatively dense, and not covered with any vegetation. Because the topsoil will be placed with little if any compactive effort, and the organic content of the soil is high, the densities will most likely remain low. Also, the coldest times of the year is when much of the moisture is present in the soil and the intent of the topsoil layer is to produce plant growth. Therefore, the likelihood of reaching the worst case conditions is minimal.

Fifteen inches of topsoil will be effective in preventing frost dessication of the final clay cover on the Bountiful Sanitary Landfill.



# Frost Penetration Variables and Results

Freezing  
Degree  
Days (F) 134

Air to  
Surface  
index (n) 0.7

dry unit weight (lb/ft <sup>3</sup> )	Moisture content (w) %	Thermal Conductivity (k)	Voulmetric Heat of Latent Fusion (L)	Frost Penetration (ft)	Frost Penetration (in)
75	15	0.4	1620	1.08	13.0
80	15	0.45	1728	1.11	13.4
85	15	0.5	1836	1.14	13.7
90	15	0.57	1944	1.18	14.2
95	15	0.62	2052	1.20	14.4
75	20	0.46	2160	1.01	12.1
80	20	0.51	2304	1.03	12.3
85	20	0.58	2448	1.06	12.7
90	20	0.64	2592	1.08	13.0
95	20	0.71	2736	1.11	13.3
75	30	0.53	3240	0.88	10.6
80	30	0.6	3456	0.91	10.9
85	30	0.68	3672	0.94	11.3
90	30	0.75	3888	0.96	11.5
95	30	1	4104	1.08	12.9
75	40	0.58	4320	0.80	9.6
80	40	0.64	4608	0.81	9.8
85	40	1	4896	0.99	11.8
90	40	1	5184	0.96	11.5
95	40	1	5472	0.93	11.2

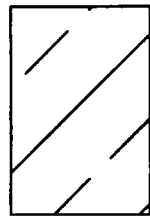
# **ADDENDA**

## **PLANNED CHANGES PERTAINING TO U.D.O.T. LEGACY PARKWAY PROJECT**

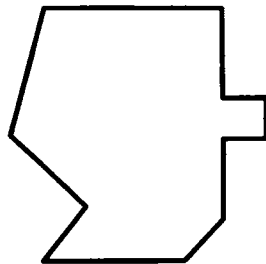
**REVISED USGS TOPOGRAPHIC MAP 7-1/2 MINUTE SERIES**

BSL-1

*Groundwater  
Monitoring Well*



*Clay Soil  
Borrow Area*



*Facility  
Boundary*





U.S. DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY



WATER RESOURCES DIVISION  
NATIONAL WATER RESEARCH INSTITUTE

G R E A T

S A L T

L A K E

**PROPERTY INFORMATION FOR RELOCATION OF FACILITIES**

**Deeds and Settlement Agreement of Bountiful City and U.D.O.T.**

RETURNED

WHEN RECORDED, MAIL TO:  
Utah Department of Transportation  
Right-of-Way, Fourth Floor,  
Box 148420  
Salt Lake City, Utah 84119-8420

OCT 26 1998

E 1451858 8 2380 P 417  
JAMES ASHAUER, DAVIS CNTY RECORDER  
1998 OCT 26 7:30 AM FEE .00 DEP REC  
REC'D FOR UTAH DEPT OF TRANSPORTATION

06-026-0030  
NE 1/4 2N 1W

## Warranty Deed

Davis County

Parcel No. 0067:125:T  
Project No. SP-0067:10

CHARLES T. DUGGAR, Grantor,

of West Bountiful, County of Davis, State of Utah,

hereby CONVEY AND WARRANT to the UTAH DEPARTMENT OF TRANSPORTATION, at 4501 South 2700 West, Salt Lake City, Utah 84119, Grantee, for the sum of Ten Dollars & other considerations-----, Dollars, and other good and valuable considerations, the following described parcel of land in Davis County, State of Utah, to-wit:

A tract of land in fee, being all of an entire tract of property, situate in the NE 1/4 of Section 14, T. 2 N., R. 1 W., S.L.B. & M. The boundaries of said tract of land are described as follows:

Beginning at the Southeast corner of said entire tract, which point is 263.347 m (864.0 ft.) S 89°56'59" W along the south line of the said NE 1/4 and 55.727 m (182.83 ft.) N 0°32'10" W from the Southeast corner of the said NE 1/4; running thence N 0°32'10" W 65.852 m (216.05 ft.) along the easterly boundary line of said entire tract to the northerly boundary line of said entire tract; thence S 89°22'20" W 69.494 m (228 ft.) along said northerly boundary line to the westerly boundary line of said entire tract; thence S 0°32'10" E 65.852 m (216.05 ft.) along said easterly boundary line to the southerly boundary line of said entire tract; thence N 89°11'20" E 69.494 m (228 ft.) along the said southerly line to the point of beginning. The above described tract of land contains 4,576.3 square meters (1.131 acres), more or less.

(Note: Rotate above bearings 0°05'31" counterclockwise to equal highway bearings.)

ALSO TOGETHER WITH AND SUBJECT TO a perpetual right of way for ingress and egress and private road purposes, to be used in common with others, over and across the following premises:

Beginning on the West line of a street at a point which is South 89°56'59" West 66.0 feet along the Quarter Quarter Section line and North 0°32'10" West 168.43 feet from the Southeast corner of the Northeast Quarter of the Northeast Quarter of said Section 14, and running thence South 89°11'20" West 1254.0 feet, more or less, to the West line of sellers land; thence along said West line North 0°32'10" West 50 feet; thence North 89°11'20" East 1254.0 feet to the West line of said street; thence along said West line South 0°32'10" East 50 feet to the point of beginning.

Continued on Page 2

PAGE 2

Parcel No. 0067:125:7  
Project No. SP-0067:125:7

E 1451858 3 2380 P 418

WITNESS, the hand\_ of said Grantor\_, this 30th day  
of September, A.D. 1998.

Signed in the presence of:

STATE OF UTAH )

) ss.

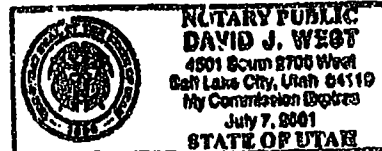
COUNTY OF DAVIS )

Charles T. Dugger

On the date first above written personally appeared before me,  
Charles T. Dugger

the signer\_ of the within and foregoing instrument, who duly acknowledged to me  
that he executed the same.

David J. West  
Notary Public





WHEN RECORDED, MAIL TO:  
Utah Department of Transportation  
Right-of-Way, Fourth Floor,  
Box 148420  
Salt Lake City, Utah 84119-4420

RETURNED

OCT 1 1998

RETURNED

OCT 26 1998

E 1451859 B 2380 P 419  
JAMES ASHAUER, DAVIS CNTY RECORDER  
REC'D FOR UTAH DEPT OF TRANSPORTATION

06-026-0023, 0027  
NE 14.2N 1W

## Warranty Deed

Davis County

Parcel No. 0067:123:T  
Project No. SP-0067( )0

CHARLES T. DUGGAR

, Grantor,

of West Bountiful, County of Davis, State of Utah,

hereby CONVEY AND WARRANT to the UTAH DEPARTMENT OF TRANSPORTATION, at  
4501 South 2700 West, Salt Lake City, Utah 84119, Grantee, for the sum  
of Ten Dollars & other considerations, Dollars,

and other good and valuable considerations, the following described parcel of land  
in Davis County, State of Utah, to-wit:

A tract of land in fee, being all of an entire tract of property, situate in  
the NE 1/4 of Section 14, T. 2 N., R. 1. W., S.E.B. & M. The boundaries of said  
tract of land are described as follows:

Beginning at the Southwest corner of said entire tract, which point is  
402.336 m (1320.0 ft.) S 89°56'59" W along the south line of the said NE 1/4 of  
Section 14 from the southeast corner of said NE 1/4; running thence N 0°32'0" W  
119.732 m (392.82 ft.) along the west line of said NE 1/4 to a northerly boundary  
line of said entire tract; thence N 89°11'20" E 69.494 m (228 ft.) along said  
northerly boundary line to an easterly boundary line of said entire tract; thence  
S 0°32'10" E 65.852 m (216.0 ft.) along said easterly boundary line to a northerly  
boundary line of said entire tract; thence N 89°11'20" E 69.494 m (228 ft.) along  
said northerly boundary line to an easterly boundary line of said entire tract;  
thence S 0°32'10" E 55.727 (182.83 ft.) along said easterly boundary line to said  
south line which is also the south line of said entire tract; thence S 89°56'59" W  
138.989 m (456 ft.) along said south line to the point of beginning. The above  
described tract of land contains 12,177.2 square meters (3.009 acres), more or less.

(Note: Rotate above bearings 0°05'31" counterclockwise to equal highway bearings.)

TOGETHER WITH AND SUBJECT TO a 50-foot wide right of way for ingress and  
egress and private road purposes.

E 1451859 B 2380 P 419  
JAMES ASHAUER, DAVIS CNTY RECORDER  
1998 OCT 26 7:30 AM FEE .00 DES REC  
REC'D FOR UTAH DEPT OF TRANSPORTATION

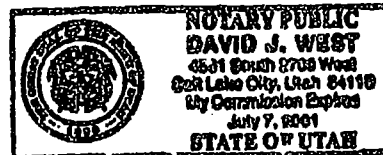
Continued on Page 2

INDIVIDUAL RW-01 110-00-04

PAGE 2

Parcel No. 006712347  
Project No. SP-0067170

E 1451859 B 2380 P 420



WITNESS, the hand\_ of said Grantor\_, this 30th day  
of September, A.D. 1998.

Signed in the presence of:

STATE OF UTAH )

) ss.

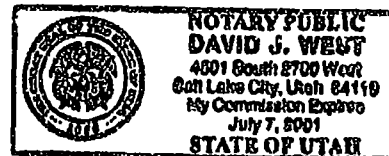
COUNTY OF DAVIS )

*Charles T. Duggar*

On the date first above written personally appeared before me,  
Charles T. Duggar

the signer\_ or the within and foregoing instrument, who duly acknowledged to me  
that \_he\_ executed the same.

*David J. West*  
Notary Public



Revised by: PLM 9/15/98

INDIVIDUAL EX-01

## **Condemnation Settlement Agreement**

The Utah Department of Transportation (hereinafter "UDOT") and Bountiful City enter into this Condemnation Settlement Agreement as follows:

1. UDOT wishes to construct a state highway known as the Legacy Parkway, which will run through portions of Davis County, Utah. The intended route crosses real estate owned by Bountiful City at four different points, which are designated as the "pond property," the "Porter Lane property," the "power substation property," and the "landfill property." Four condemnation actions have already been filed in Second District Court, which are, respectively, civil numbers 010800928-CD, 010700234-CD, 010700106-CD, and 010800716-CD. The properties and easements which need to be taken from Bountiful for the Legacy Parkway are legally described in those lawsuits.

2. In consideration of the compensation stated herein, Bountiful City will convey the necessary deeds and easements to UDOT for use in the Legacy Parkway.

3. In consideration of the conveyances of the deeds and easements by Bountiful City, UDOT shall compensate Bountiful City as follows:

(a) \$36,600.00 shall be paid in connection with the "pond property." UDOT has paid this amount into the court in the condemnation action (#010800928), and this may be withdrawn by Bountiful City.

(b) \$2,000,000 shall be paid by check for the other three properties.

(c) UDOT shall at its expense acquire and convey to Bountiful City a parcel of land adjacent to the Bountiful landfill which has been designated for the construction of a new weigh station, scale house, etc., for the use and ownership of the City. This land shall be fully cleared and new facilities constructed (i.e., a new weigh station, scale house, etc.), solely at the expense of UDOT, except that the City shall pay for any upgrades, enlargements or enhancements over the existing facilities.

4. Bountiful City's access to and operation of the Bountiful landfill shall not be interrupted at any time during the construction of the Legacy Parkway. UDOT understands that daily operation is essential to the City. The new facilities installed by UDOT shall be fully constructed and operational before the existing facilities can be shut down, such that one day the landfill fully uses the existing facilities and the next day fully uses the new facilities, with no interruption of service to the public. Access to the landfill on Page's Lane shall not be interrupted until access to the landfill from the new frontage road is complete and operational.

5. Bountiful City's access to and operation of the electrical power substation shall not be interrupted at any time during the construction of the Legacy Parkway. UDOT understands that daily access is essential to the City. Sheep Lane access shall not be interrupted until the new access route is complete and operational.

6. The pending lawsuits will be dismissed by stipulation.

7. This Settlement Agreement does not attempt to set out in full the working relationship between the Engineering Departments nor Contractors of each party hereto, but rather sets forth the real estate to be conveyed and the proceeds to be paid as "Just Compensation." Both parties agree that each will communicate to the other and cooperate with each other to accomplish other oral aspects of the settlement.

Dated this 15 day of May, 2002.

Bountiful City

Mark L. Shurtleff  
Attorney General

By: Russell L. Mahan  
Russell L. Mahan  
Bountiful City Attorney  
Attorney for the Defendant

By: J.D. Reynolds  
J.D. Reynolds  
Assistant Attorney General  
Attorney for the Plaintiff

REVISED PLAN DRAWINGS FROM APPENDIX B

Site Improvements

Phase III Final Contours

Phase III Grading Plan

Phase IV Final Contours

Phase IV Grading Plan

Final Grading Plan

Scale  
1"=100'

Existing  
Boundary

New Boundary

Proposed  
Recycle Bins

Proposed Public  
Convenience Center

Proposed  
Green Waste  
Stockpile  
Area

Proposed Compost  
Pad Location

Abandon/Plug  
Existing Well

Proposed  
Compost  
Screening  
Area

Proposed  
Office/Shop

Proposed  
Retention  
Pond

Proposed  
Compost  
Sale Area

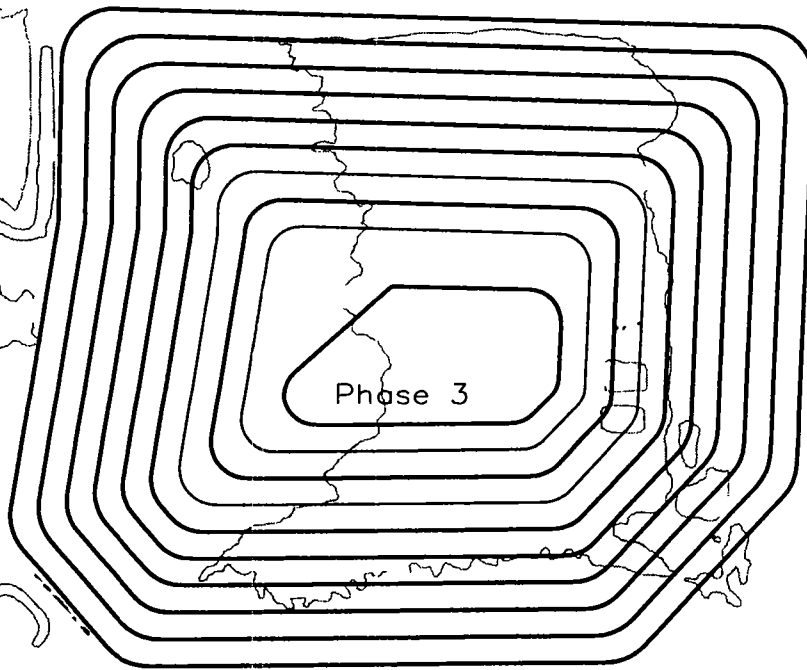
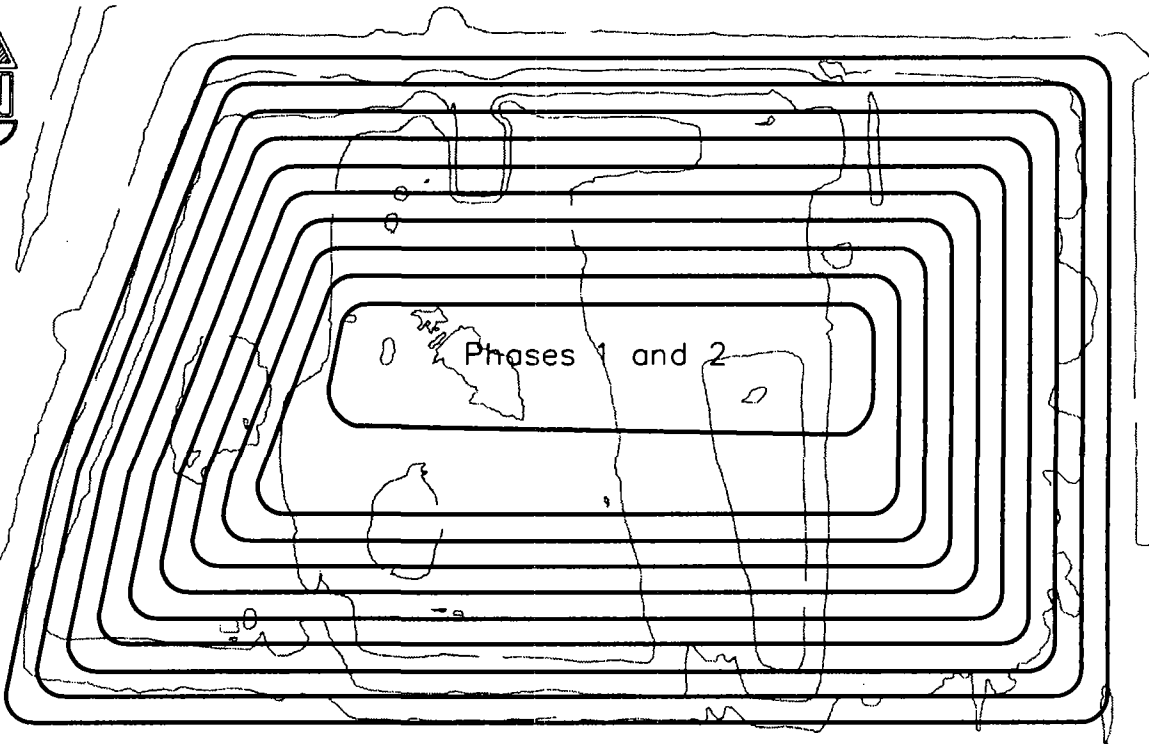
Proposed Parking

New Boundary

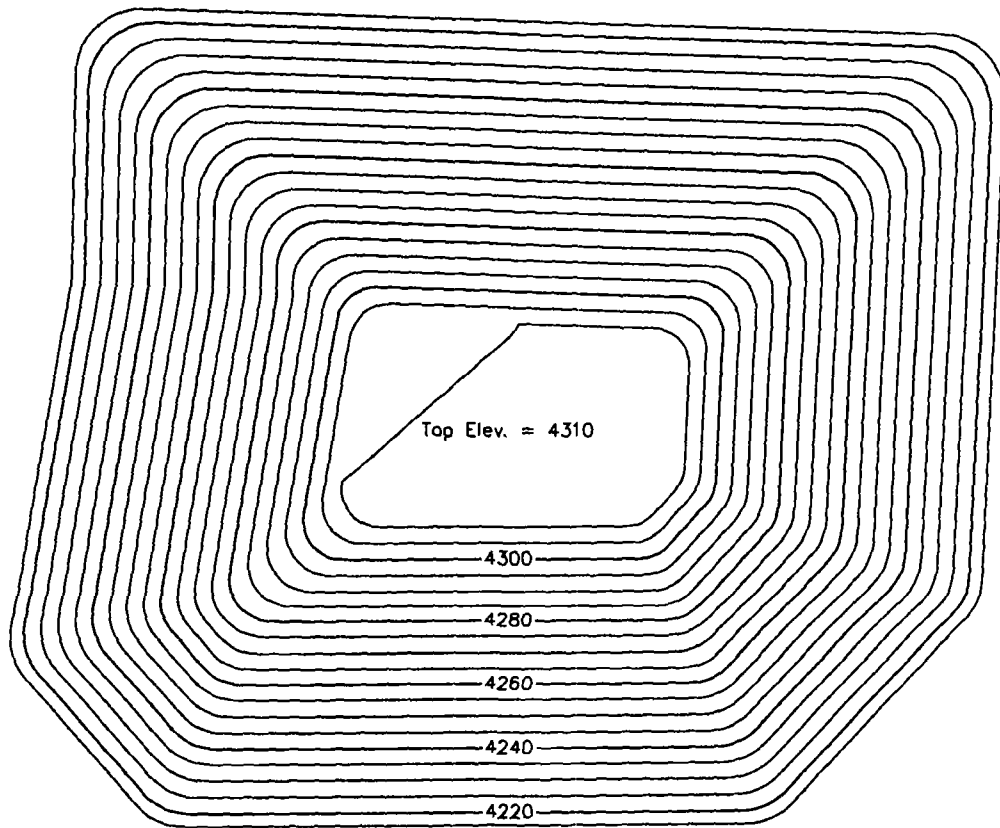
Proposed  
Scales and  
Scale House

Existing  
Boundary



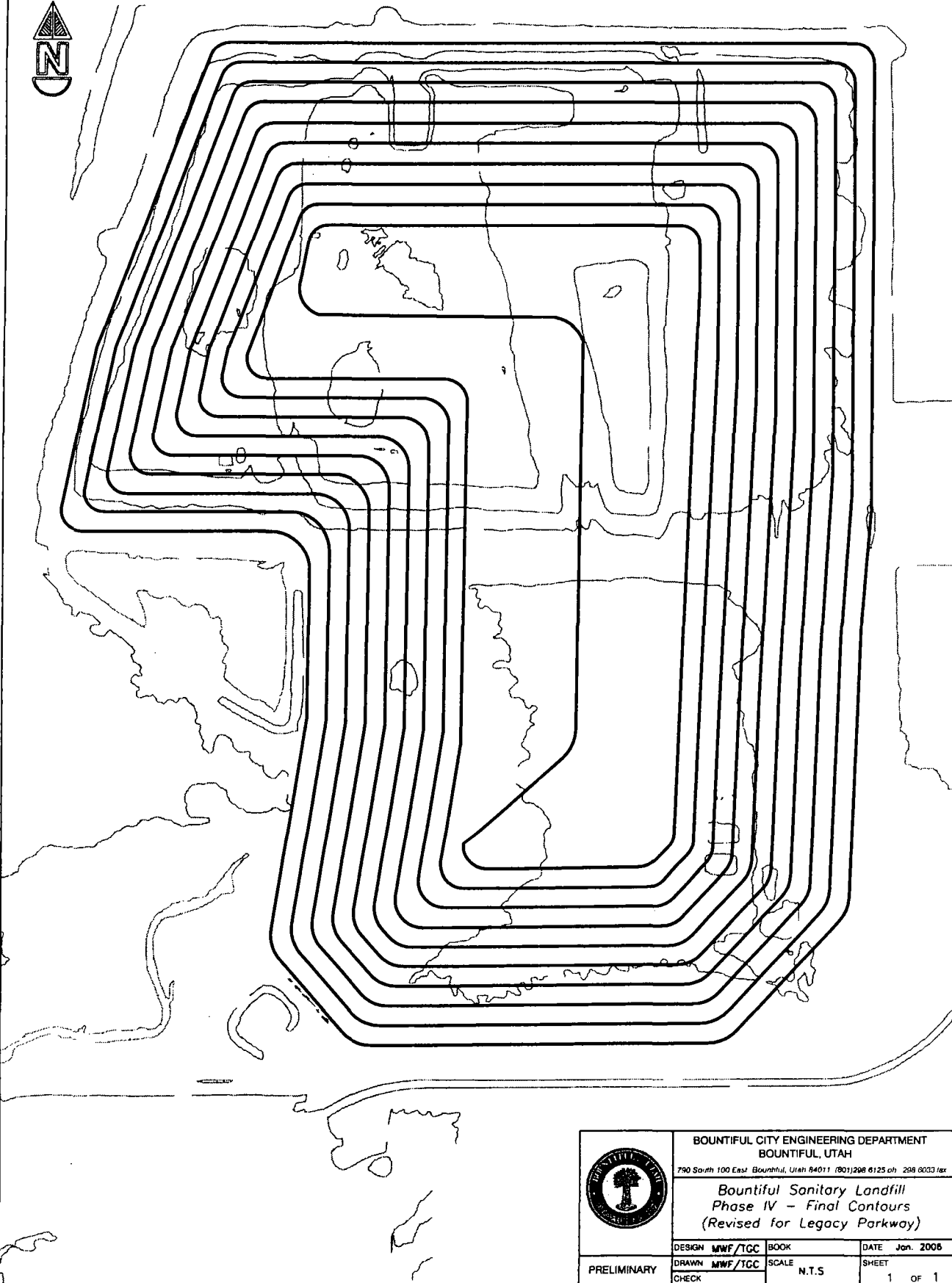


	BOUNTIFUL CITY ENGINEERING DEPARTMENT BOUNTIFUL, UTAH		
	790 South 100 East Bountiful, Utah 84011 (801)268-6125 ext. 208 x0713 fax		
	Bountiful Sanitary Landfill Phase III Final Contours (Revised for Legacy Parkway)		
	DESIGN MWF/TGC	BOOK	DATE Jan. 2008
DRAWN MWF/TGC	SCALE N.T.S.	SHEET	
CHECK		1	OF 1

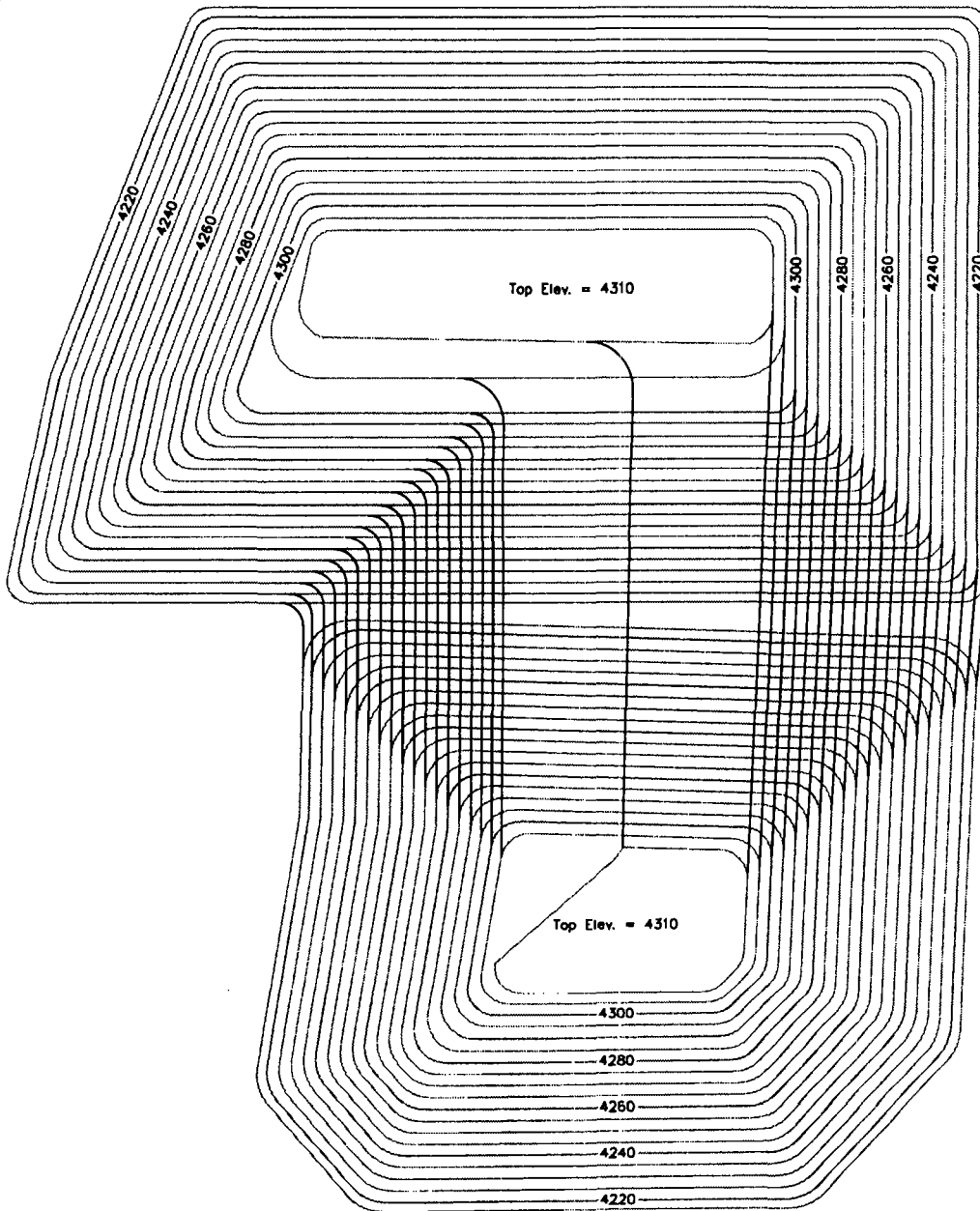



	BOUNTIFUL CITY ENGINEERING DEPARTMENT BOUNTIFUL, UTAH <small>750 South 100 East, Bountiful, Utah 84011 (801)268-8125 or 206-6033 fax</small>		
	<i>Bountiful Sanitary Landfill Phase III Grading Plan (Revised for Legacy Parkway)</i>		
	DESIGN <b>WWF/TGC</b>	BOOK	DATE <b>Jan, 2006</b>
PRELIMINARY	DRAWN <b>WWF/TGC</b>	SCALE <b>1" = 300'</b>	SHEET
CHECK			<b>1</b> OF <b>1</b>

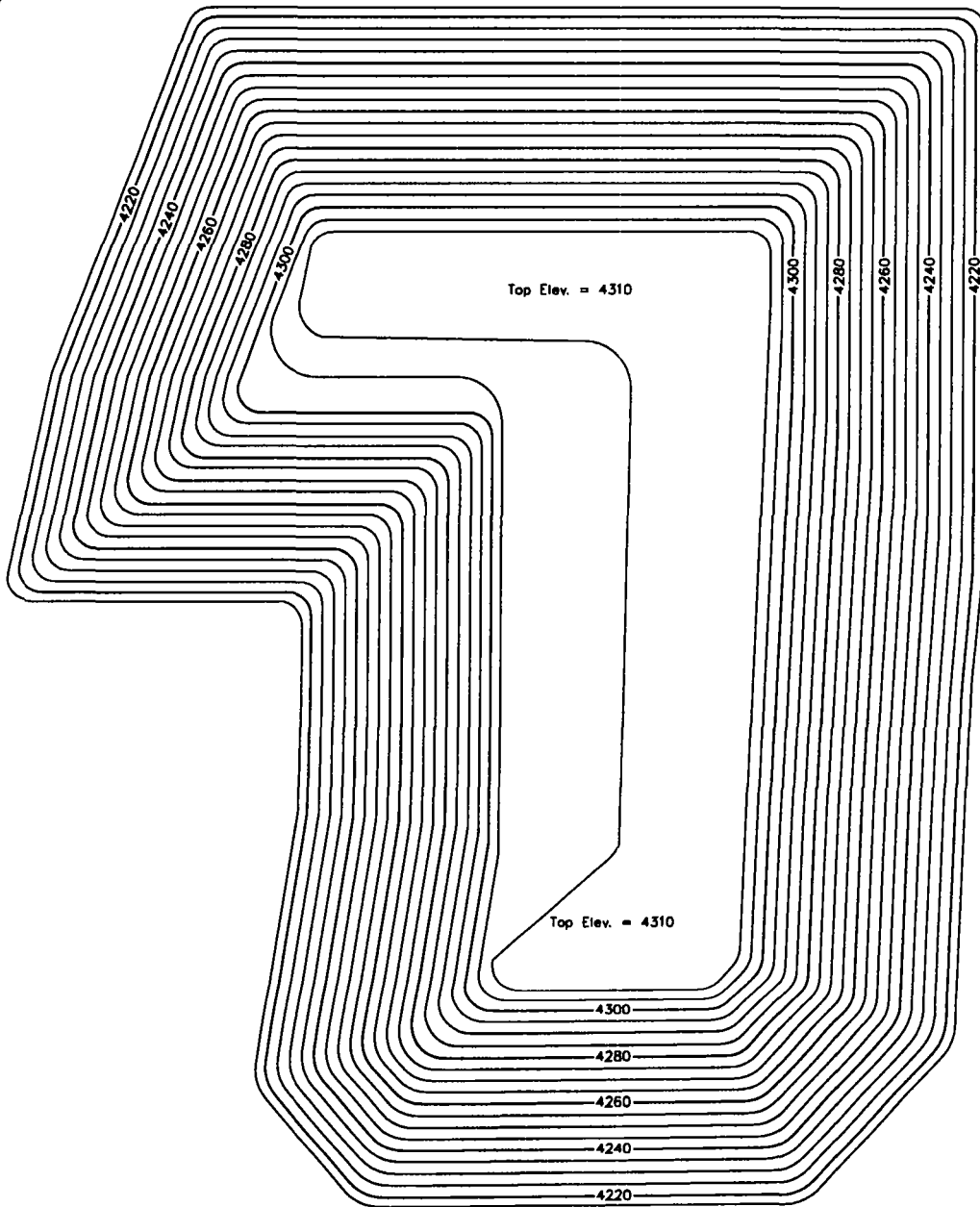





	BOUNTIFUL CITY ENGINEERING DEPARTMENT BOUNTIFUL, UTAH		
	790 South 100 East, Bountiful, Utah 84011 (801)298-6125 ext. 298 6033 fax		
	Bountiful Sanitary Landfill Phase IV - Final Contours (Revised for Legacy Parkway)		
	DESIGN <b>MWF/TCC</b>	BOOK	DATE Jan. 2005
PRELIMINARY	DRAWN <b>MWF/TCC</b>	SCALE N.T.S.	SHEET
CHECK			1 OF 1



	BOUNTIFUL CITY ENGINEERING DEPARTMENT BOUNTIFUL, UTAH		
	790 South 100 East Bountiful, Utah 84011 (801)298-6125 ext. 298 6033 fax		
	Bountiful Sanitary Landfill Phase IV Grading Plan (Revised for Legacy Parkway)		
	DESIGN <b>WWF/TGC</b>	BOOK	DATE Jan. 2006
DRAWN <b>WWF/TGC</b>	SCALE <b>1" = 400'</b>	SHEET	
CHECK		1	OF 1



	BOUNTIFUL CITY ENGINEERING DEPARTMENT BOUNTIFUL, UTAH		
	790 South 100 East Bountiful, Utah 84011 (801)298-6125 ext. 208 2003 fax		
	Bountiful Sanitary Landfill Final Grading Plan (Revised for Legacy Parkway)		
	DESIGN <b>WWF/TGC</b>	BOOK	DATE Jan. 2006
DRAWN <b>WWF/TGC</b>	SCALE 1" = 400'	SHEET	
CHECK		1	OF 1